COLOR TELEVISION

Chassis : KSBH(P)_CB1J
Model : CS21A530FLKXSV

SERVICE Manual

COLOR TELEVISION

CS21A530FL

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2. Product Specification
3. Disassembly & Reassembly
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7. Schematic Diagram

Refer to the service manual in the GSPN (see the rear cover) for the more information.

GSPN (Global Service Partner Network)

Area	Web Site
North America	service.samsungportal.com
Latin America	latin.samsungportal.com
CIS	cis.samsungportal.com
Europe	europe.samsungportal.com
China	china.samsungportal.com
Asia	asia.samsungportal.com
Mideast & Africa	mea.samsungportal.com

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1. Precaution

To avoid possible damages or electric shocks or exposure to radiation, follow the instructions below with regard to safety, installation, service and ESD.

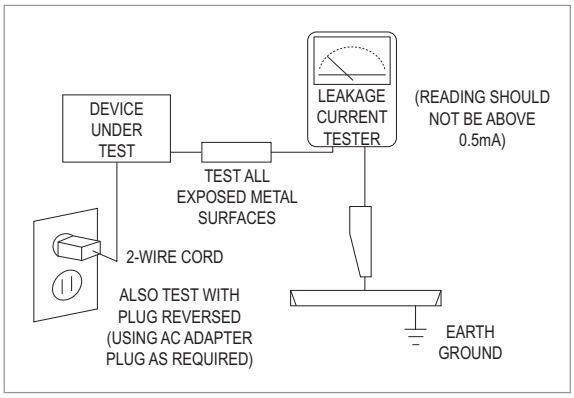
1-1 Safety Precautions

1. Make sure all protective devices are properly installed including non-metallic handles and compartment covers when installing or re-installing the chassis or chassis assemblies.

2. Make sure that no gaps exist between the cabinets for children to insert their fingers in to prevent children from receiving electric shocks. Gaps mentioned above include ventilation holes of a too great magnitude between the vaccum tube and the cabinet mask, and the improper installation of the rear cabinet.

   Errors may occur when the resistance is below 1.0 MΩ or over 5.2 MΩ.
   In these cases, make sure that the device is repaired before sending it back to the customer.

3. Check for Electricity Leakage (Figure 1-1)
   Warning: Do not use an insulated transformer for checking the leakage. Use only those current leakage testers or mirroring systems that comply with ANSIC 101.1 and the Underwriter Laboratory's specifications (UL1410, 59.7).


DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
(READING SHOULD NOT BE ABOVE 0.5mA)
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

4. A high voltage is maintained within the specified limits using safety parts, calibration and tolerances. When voltage exceeds the specified limits, check each special part.

5. Warning for Engineering Changes:
   Never make any changes or additions to the circuit design or the internal part for this product.
   Ex: Do not add any audio or video accessory connectors. This might cause physical damage. Furthermore, any changes or additions to the original design/engineering will invalidate the warranty.

6. Warning - Hot Chassis:
   Some TV chassis are directly connected to one end of the AC power cord for electrical reasons.
   Without insulated transformers, the product can only be repaired safely when the chassis is connected to the earthed end of the AC power source.

   To make sure the AC power cord is properly connected, follow the instructions below. Use the voltmeter to measure the voltage between the chassis and the earthed ground. If the measurement is over 1.0V, unplug the AC power cord and change the polarity before re-inserting it. Measure the voltage between the chassis and the ground again.

7. Some TV chassis are shipped with an additional secondary grounding system. The secondary system is adjacent to the AC power line. These two grounding systems are separated in the circuit using an unbreakable/unchangeable insulation material.

8. When any parts, material or wiring appear overheated or damaged, replace them with new regular ones immediately.
   When any damage or overheating is detected, correct this immediately and make a regular check of possible errors.

9. Check for the original shape of the lead, especially that of the antenna wiring, any sharp edges, the AC power and the high voltage power. Carefully check if the wiring is too tight, incorrectly placed or loose. Never change the space between the part and the printed circuit board. Check the AC power cord for possible damages. Keep the part or the lead away from any heat-emitting materials.

10. Safety Indication:
    Some electrical circuits or device related materials require special attention to their safety features, which cannot be viewed by the naked eye. If an original part is replaced with another irregular one, the safety or protective features will be lost even if the new one has a higher voltage or more watts.

    Critical safety parts should be bracketed with (⚠, ⚠). Use only regular parts for replacements (in particular, flame resistance and dielectric strength specifications). Irregular parts or materials may cause electric shock or fire.

1-2 Servicing Precautions

Warning 1: First carefully read the “Safety Instruction” in this service manual.
When there is a conflict between the service and the safety instructions, follow the safety instruction at all times.

Warning 2: Any electrolytic capacitor with the wrong polarity will explode.

1. The service instructions are printed on the cabinet, and should be followed by any service personnel.

2. Make sure to unplug the AC power cord from the power source before starting any repairs.
   (a) Remove or re-install parts or assemblies.
   (b) Disconnect the electric plug or connector, if any.
   (c) Connect the test part in parallel with the electrolytic capacitor.

3. Some parts are placed at a higher position than the printed board. Insulated tubes or tapes are used for this purpose.
   The internal wiring is clamped using buckles to avoid contact with heat emitting parts. These parts are installed back to their original position.

4. After the repair, make sure to check if the screws, parts or cables are properly installed. Make sure no damage is caused to the repaired part and its surroundings.

5. Check for insulation between the blade of the AC plug and that of any conductive materials (i.e. the metal panel, input terminal, earphone jack, etc).

6. Insulation Check Process: Unplug the power cord from the AC source and turn the switch on. Connect the insulating resistance meter (500v) to the AC plug blade.

   The insulating resistance between the blade of the AC plug and that of the conductive material should be more than 1MΩ.

7. Any B+ interlock should not be damaged.
   If the metal heat sink is not properly installed, no connection to the AC power should be made.

8. Make sure the grounding lead of the tester is connected to the chassis ground before connecting to the positive lead.
   The ground lead of the tester should be removed last.

9. Beware of risks of any current leakage coming into contact with the high-capacity capacitor.

10. The sharp edges of the metal material may cause physical damage, so protect yourself by wearing gloves during the repair.

1-3 Static Electricity Precautions

1. Some semi-conductive (“solid state”) devices are vulnerable to static electricity. These devices are known as ESD. ESD includes the integrated circuit and the field effect transistor. To avoid any materials damage from electrostatic shock, follow the instructions described below.

2. Remove any static electricity from your body by connecting the earth ground before handling any semi-conductive parts or assemblies. Alternatively, wear a dischargeable wrist-belt.
   (Make sure to remove any static electricity before connecting the power source - this is a safety instruction for avoiding electric shock)

3. Remove the ESD assembly and place it on a conductive surface such as aluminum foil to prevent accumulating static electricity.

4. Do not use any Freon-based chemicals. Such chemicals will generate static electricity that causes damage to the ESD.

5. Use only grounded-tip irons for soldering purposes.

6. Use only anti-static solder removal devices.
   Most solder removal devices do not support an anti-static feature. A solder removal device without an anti-static feature can store enough static electricity to cause damage to the ESD.

7. Do not remove the ESD from the protective box until the replacement is ready. Most ESD replacements are covered with lead, which will cause a short to the entire unit due to the conductive foam, aluminum foil or other conductive materials.

8. Remove the protective material from the ESD replacement lead immediately after connecting it to the chassis or circuit assembly.

9. Take extreme caution in handling any uncovered ESD replacements. Actions such as brushing clothes or lifting your leg from the carpet floor can generate enough static electricity to damage the ESD.

CAUTION

These servicing instructions are for use by qualified service personnel only.
To reduce the risk of electric shock do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.
2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.
3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.
4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.
5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.
6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the high-voltage cable or the antenna falling over may cause fire or electric shock.
7. Check the basics of the screen test.
   - Image position/size, Tilt adjustment, Actuator activation .

MEMO

2. Product Specification

2-1 Product Specification

Features			
Block	Specification	Major IC	Remark
CRT	21” Slim CRT	21” Ultra Slim CRT	AA03-00580A
RF Part	1 TUNER F/S TUNER	EWT-5F6T2-EW	
Power	Input Voltage : SEA:220~240V MID-ASIR:100~240V	W6753F	
Video	MULTI SYSTEM(NT/PAL/SECAM)	UOC TOP	
	1H Comb Filter		
Sound	Output : 5Wx2	LA42032	
Cabinet	21AF0 Cabinet	AM0 Cabinet	
Specification			
Model	CS21A530FJ		
Screen Size	21”		
Dimensions (WxHxD)	573 x 331.4 x 465.2 mm		
Weight	18 kg		
Voltage	SEA: 220~240V MID-ASIR: 100~240V		
Speaker Output	5W + 5W		

2-2 Specifications Analysis

※ ○: application, ×: non-application

Model		CS21A530FJ (KSBH)	CS-21Z45MJ (KSCA)
Design			
Basic	Product Type	Ultra Slim Marathon CRT	Ultra Slim Fit CRT
	Digital TV	Analog	Analog
	Digital Display	576i/480i	576i/480i
	Screen Size	21	21
	Aspect Ratio	4:3	4:3
Visual Quality	Progressive Scan	O	O
	Digital Comb Filter	O	O
	Screen Pitch	0.73	0.73
	Digital Noise Reduction	O	O
	AKB	O	O
	DNIe Jr	O	O
	3:2 Pull Down Support	X	X
Audio	Base/Treble/Balance	X	X
	Equalizer	X	X
	AVL	X	X
	Surround	X	X
	Speaker System	Direct	Direct
	Sperker Output	5W + 5W	5W + 5W
Function	Dual Screen Function	X	X
	Double Screen	X	X
	TTX	X	X
	Still Picture	X	X
	Auto Jack Recognition	X	X
	EPG	X	X
	Network	X	X
	FM Radio	O	X
Ports	Antenna In	Rear:1	Rear:1
	Extermal In	Rear: 2	Rear: 1
	S-Video	X	X
	Y/Pb/Pr	O	X
	PC	X	X
	DVI	X	X
	HDMI	X	X
	Digital Audio Out	X	X
	Video Out	Rear.1	Rear:1
Remote Controller		TM930	TM930

※ For the power supply and power consumption, refer to the label attached to the product.

2-3 Accessories

2-3-1 Supplied Accessories

Accessories	Item	Item code	Remark
	Remote Control Batteries	BN59-00891A 4301-000121	Samsung Service center
	Power Cord	AA39-10006X	
	Owner's Instructions	AA68-03999B	
	Warranty Card Registration Card Safety Guide Manual	- - AA68-03242M	

2-3-2 Accessories that can be purchased additionally

Accessories	Item	Item code	Remark
	RF Cable	-	Electronics Store/ Internal shopping mall
	Video Cable	-	
	Audio Cable	-	
	Component Cables (RCA)	-	

MEMO

4. Troubleshooting

4-1 Troubleshooting

4-1-1 First Checklist for Troubleshooting

1. Power LED: Check that the LED works when the power cord is connected to a 90-264 wall outlet.

2. LED Indicators: See table 4-1-2 Basic Troubleshooting: LED Diagnosis on the Front Panel.

3. In case of a power failure or abnormal screen, check the following items.
   ① Check that the power cord is correctly connected to a 90-264 wall outlet.
   ② Check that the Master Switch has been pressed.
   ③ Ch eck that the transmitter is turned on.
   ④ Check that transmitter device selection is set to TV.
   ⑤ Check that the signal cable is properly connected.
   ⑥ Check that channel setting has been set.

4-1-2 Checkpoints by Error Mode

1. Troubleshooting Summary

Problem	Solution
The power does not turn on.	Check if the power cord is properly connected.
Air broadcasting does not work.	Check if the antenna is properly installed.
Cable broadcasting does not work.	Subscribe to a local cable broadcasting firm and get support.
Satellite broadcasting does not work.	Install a satellite antenna (Parabola) and connect it to the TV.

2. Menu & Remote Control

Problem	Solution
The remote control does not work.	■ Press the Select Device button to select the TV or external device. ■ Replace the battery of the remote control with a new one. ■ Insert the battery making sure the polarity (+,-) is correct. ■ Check if the angle or the distance is sufficient, or if there is any interference between the product and the remote control. ■ Make sure the user has pressed the correct button. ■ To avoid direct sunlight to the receiving panel of the TV, remove any indoor lighting or change the location of the TV. ■ Check if the power switch at the back left of the TV is turned on..
Cannot change the channel with the remote control.	■ Press the Select Device button to select the TV. ■ Change the channel using the remote control of the cable or satellite receiver.
Cannot select an A/V channel.	Press the source button and check if the AV item is grayed out. When the AV item is grayed out, you cannot select an A/V channel. Check if the connector is properly connected.
Cannot select a menu.	Check if the menu is grayed out. If a menu is grayed out, it cannot be selected.

3. Screen

Problem	Solution
The screen is black and there is no sound.	■ Check if the power cord is properly connected. ■ Turn on the power. ■ Select an AV channel that corresponds to the external device.
Only the screen is blank/it is dark or too bright.	Adjust the screen brightness.
The screen is blue/the external channel is not displayed.	■ Check if the connector is properly installed. ■ Select an AV channel that corresponds to the external device.
The screen overlaps (double/triple).	■ Check if the antenna is properly installed. ■ Adjust the position, angle or direction of the antenna.
The screen is snowy or unclear. The picture quality gets worse when it is windy	■ Check if the antenna has been bent or moved by the wind. ■ Check the antenna for its lifetime. (Normally 3 - 5 years, 1-2 years near the coast)
Dotted or semi-dotted lines are displayed on the screen.	Install the antenna as far away from the road as possible.
The screen is black and white.	■ Adjust the color density. ■ Check if the connector is properly installed.
The colors of the screen are odd/strange.	Adjust the color tones.
Unusual lines appear on the screen.	Keep the antenna away from the power cord or connectors if possible.
Unusual lines appear on the screen when watching or recording to video.	Keep the video player as far away from the TV as possible.

4. Sound

Problem	Solution
There is no sound.	■ Increase the volume. ■ Press the Mute button.
The sound is very low.	■ Increase the volume. ■ Set the auto volume control to ON.
There is a lot of noise.	Keep the antenna away from the power cord or connectors if possible.
The selected language does not appear.	Press the Multiplex button to select the TV.

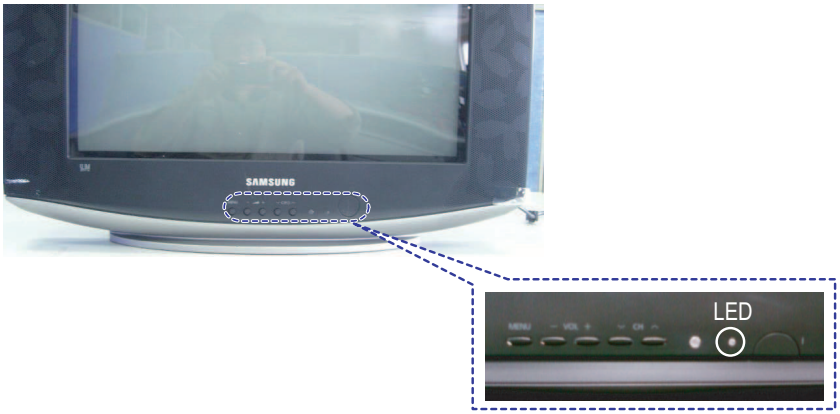
5. Channel

Problem	Solution
There are no channels available.	■ Check if the antenna is properly installed. ■ Press the Auto Channel button to store channels. ■ Contact your local broadcasting service station.
Some channels are not available.	■ Adjust the position, angle or direction of the antenna. ■ Activate the Reception Sensitivity Boost feature. ■ Contact your local broadcasting service station. ■ Use the number keys to select a specific channel and press Store/Clear to memorize it.
Only the UHF (14-69) channels are not available.	Check if the antenna is able to receive UHF signals.

6. Others

Problem	Solution
The TV makes a noise as if something is dropping inside.	This noise may occur when the plastic material inside the TV expands or contracts according to the seasonal temperature or humidity. This is like the noise from a furniture/cabinet/sink unit, and there is no need for concern.

7. Basic Troubleshooting: Diagnosis of LED on the Front Panel



●:Light is On
◑:Light is Blinking
○:Light is Off

Power	Description
○	This happens when the TV have turned on the power cord is disconnected.
●	This happens when the power cord is connected.
○→◑→●	The LED blinks, while the unit is starting up or the unit is turning off.

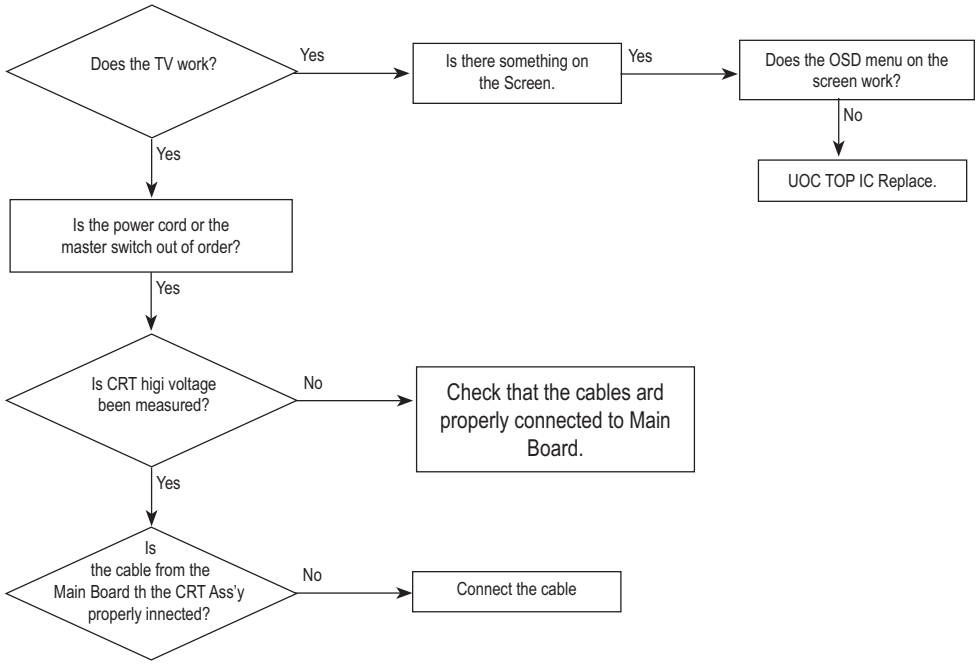
8. Troubleshooting by the Checksum

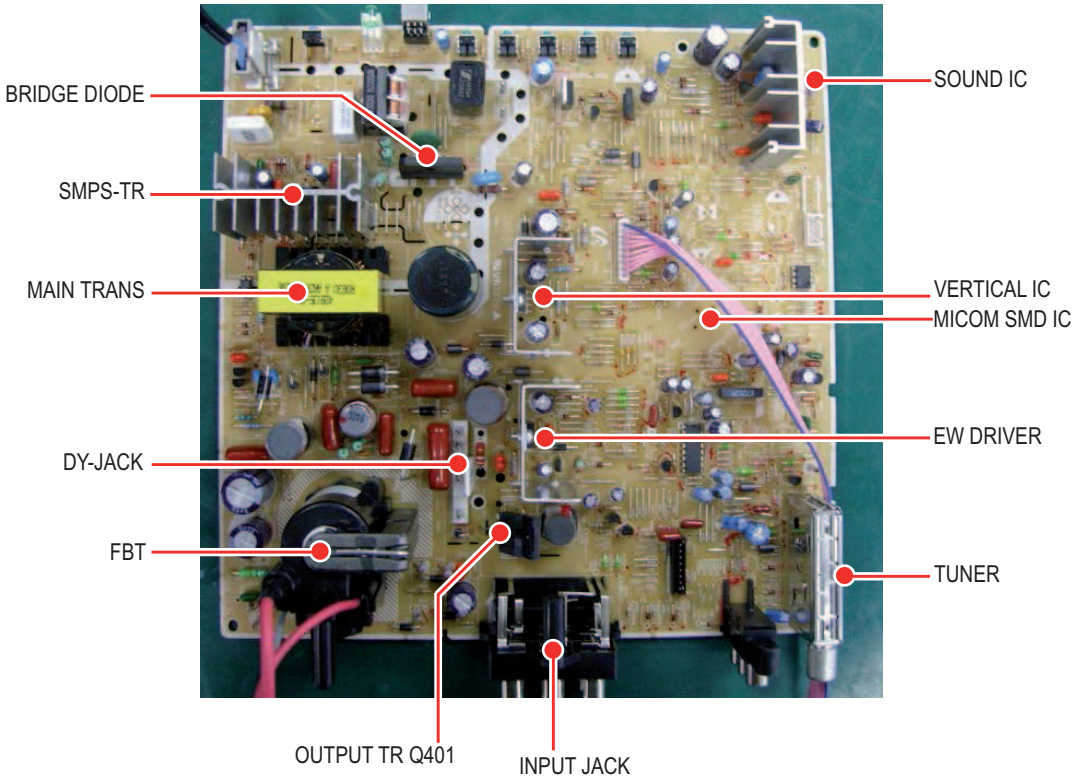
■ Diagnosis of trouble by the checksum is neither reliable nor convenient.
You can only use the checksume of the current direct-view TV to determine whether the software is corrupted or not.
The Checksum value is determined according to the version of the software loaded on the set.
Therefore, you can determine whether the software has been properly downloaded, if you know the correct checksum for that version of the software.

You can check the checksum according in the following order.
Factory Mode → Checksum → Enter → Output Checksum (e.g. 0xab2b)

■ Checksum Examples
T-SIXPEANL-1000.3 Checksum=E068

9. Flow Chart for Malfunction

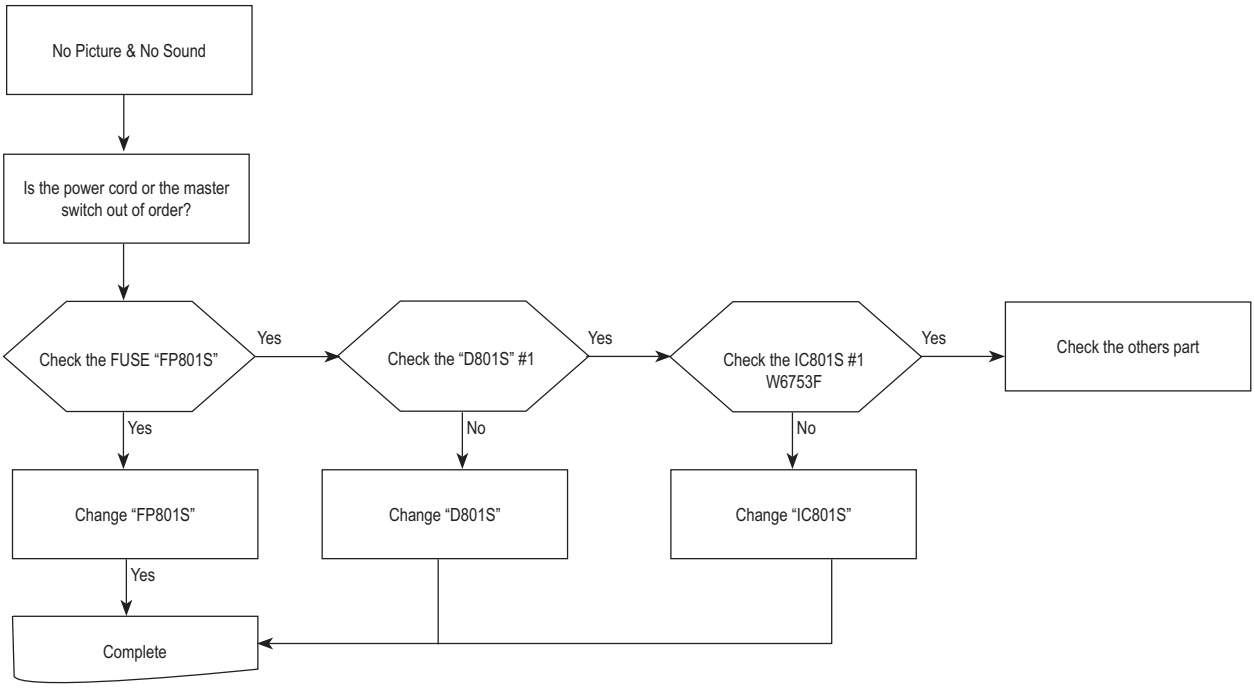

Does the TV work?
Yes
Is there something on the Screen.
Yes
Does the OSD menu on the screen work?
No
UOC TOP IC Replace.
Yes
Is the power cord or the master switch out of order?
Yes
Is CRT higi voltage been measured?
No
Check that the cables ard properly connected to Main Board.
Yes
Is the cable from the Main Board th the CRT Ass'y properly innected?
No
Connect the cable

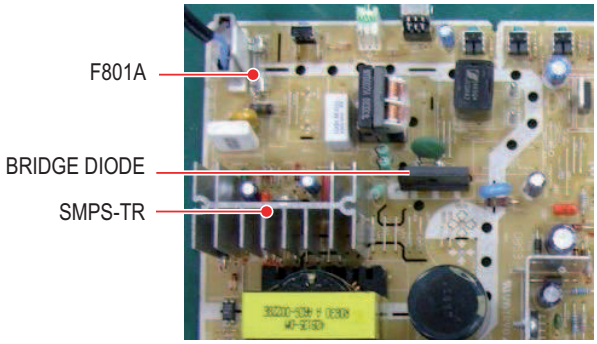


4-1-3 Troubleshooting Procedures by ASS'Y

1 NO Power

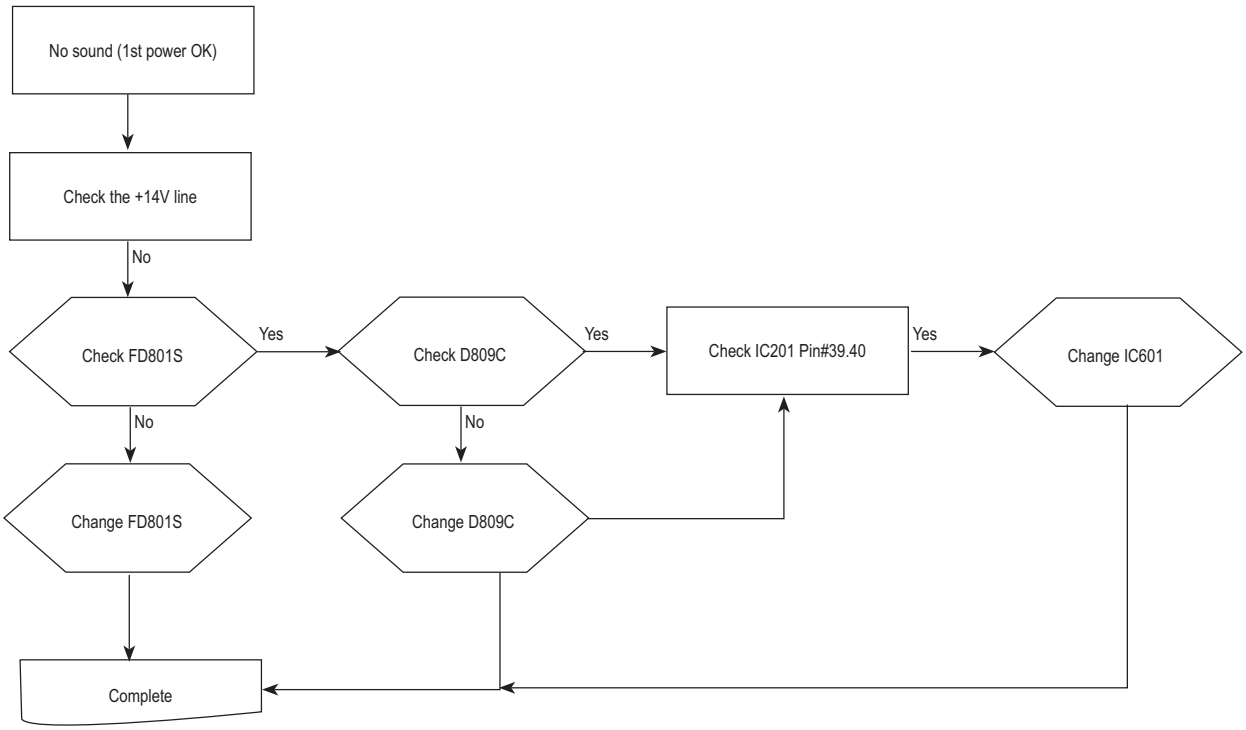
- Power part of the Main Board Check.

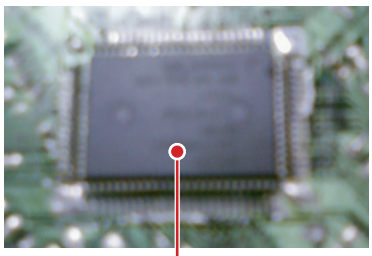


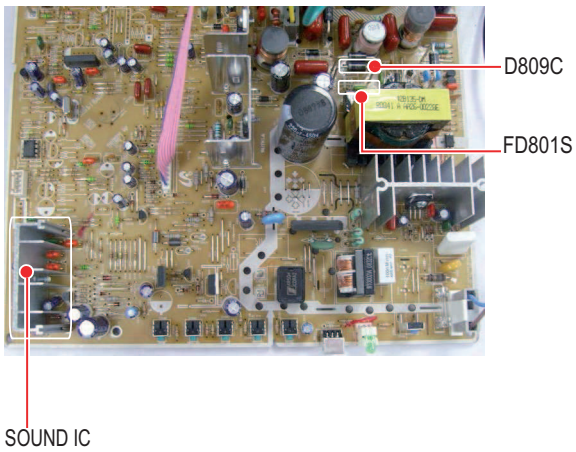


2. No Sound

- when the power is normal

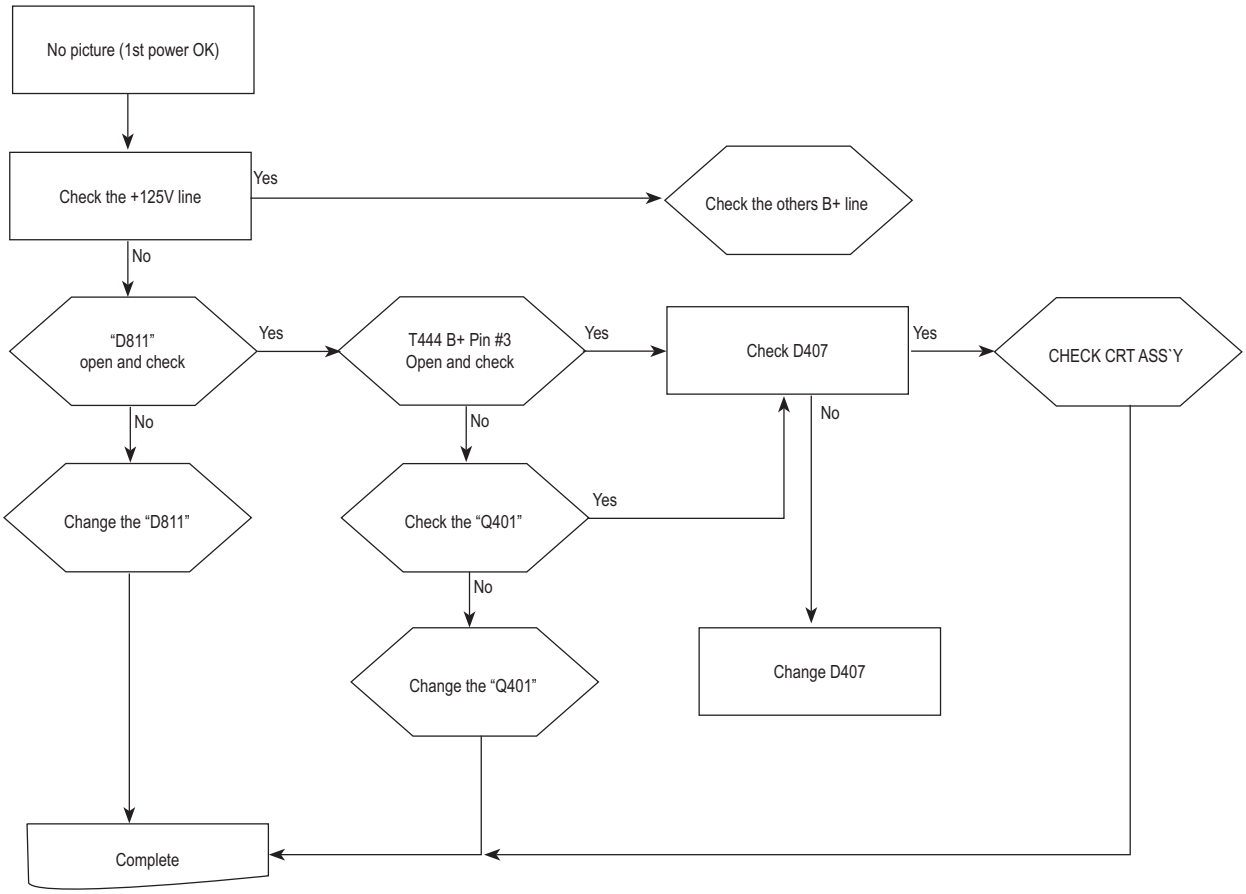


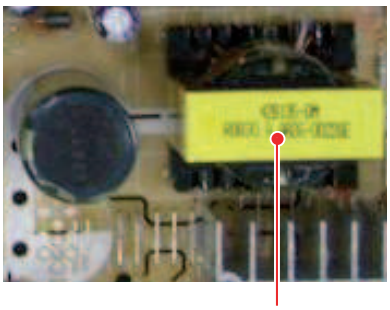




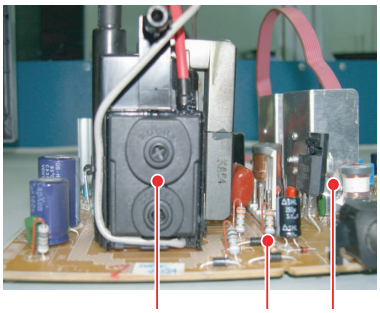
3. No Picture

- when the power is normall

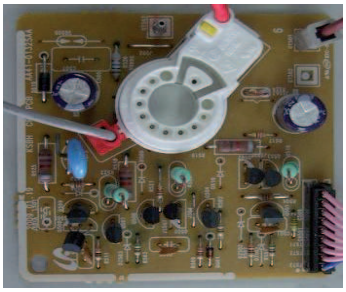




MAIN TRANS

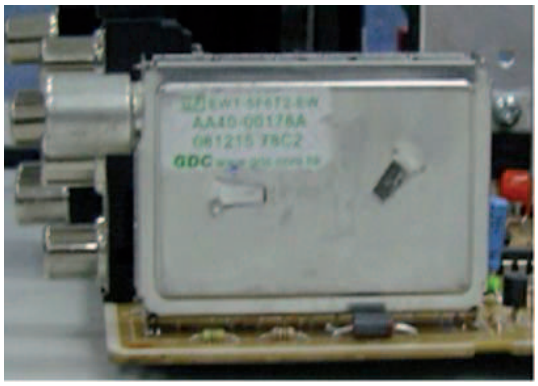


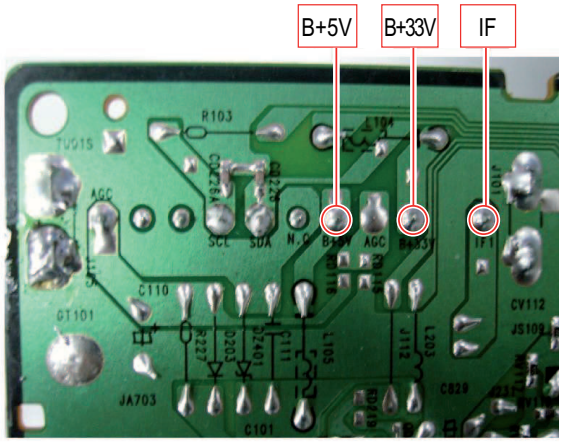
FBT D407 OUTPUT TR Q401

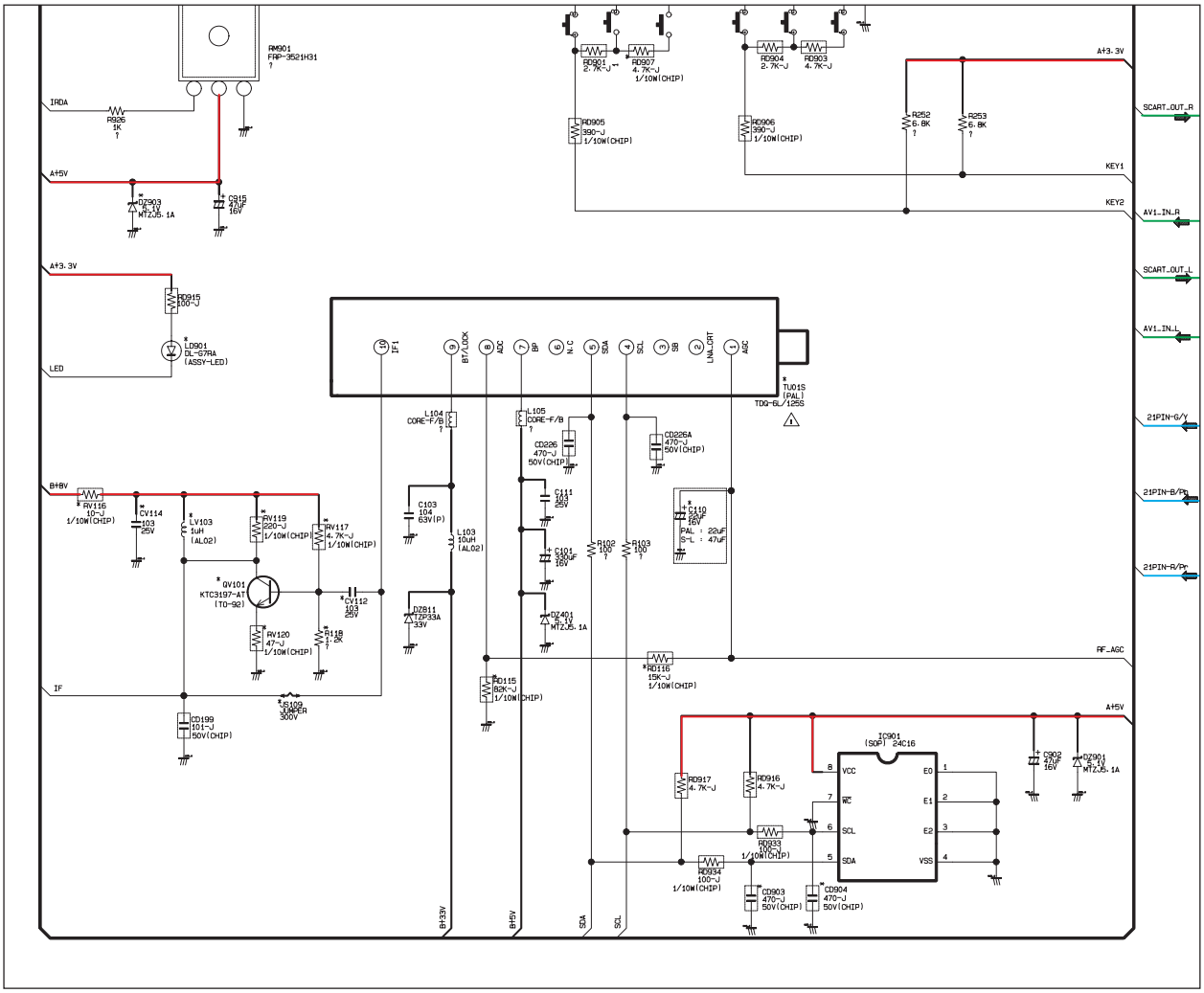


4-1-4 Troubleshooting by Blocks

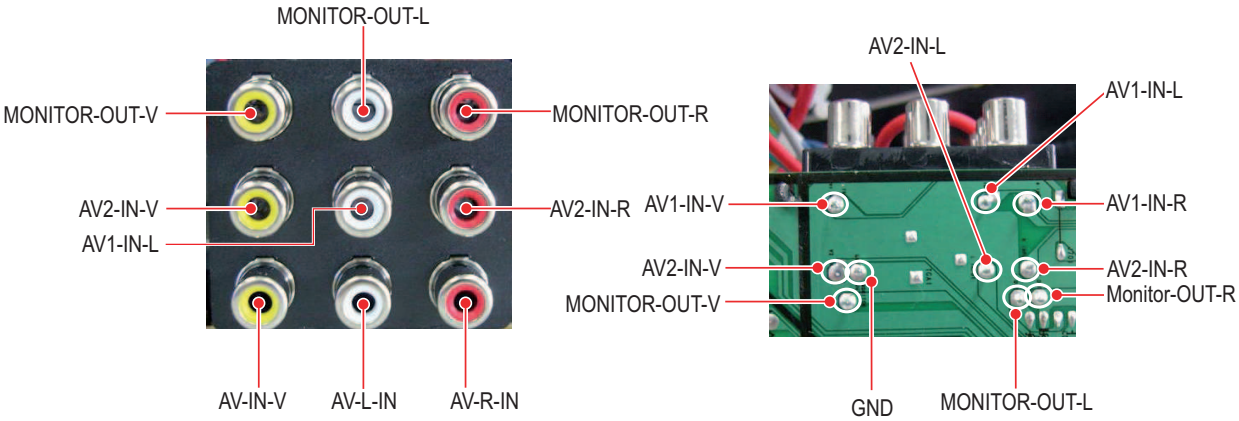
1. Tuner Diagnosis
   If there is no signal measured even though the RF signal received by the external antenna is input to the Main Board Tuner.
   - Supplied Power: 5V, 8V, 33V
   - RF Trouble Check: Check CVBS output
   - AUDIO Trouble Check: Check SiF Signal output

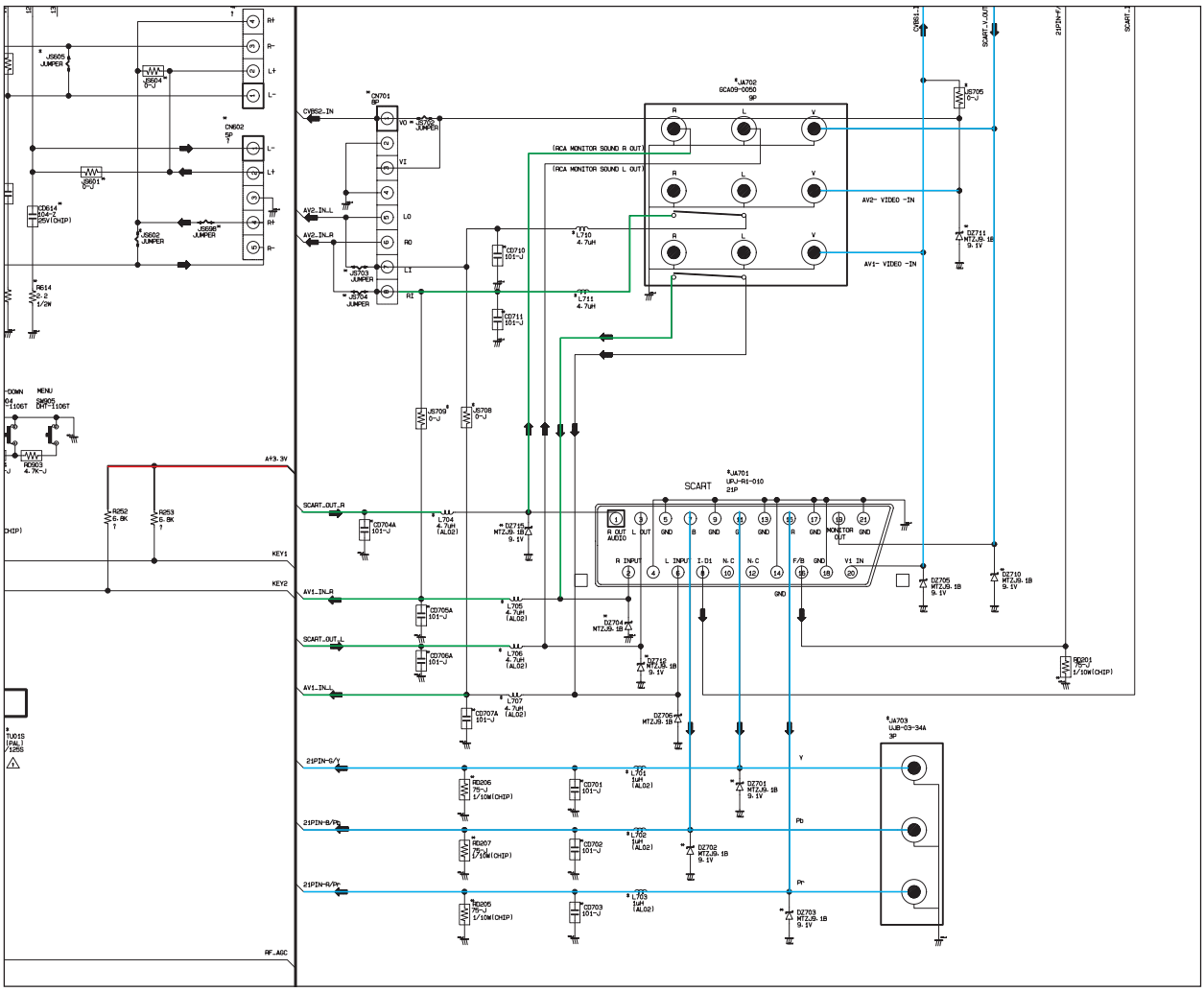




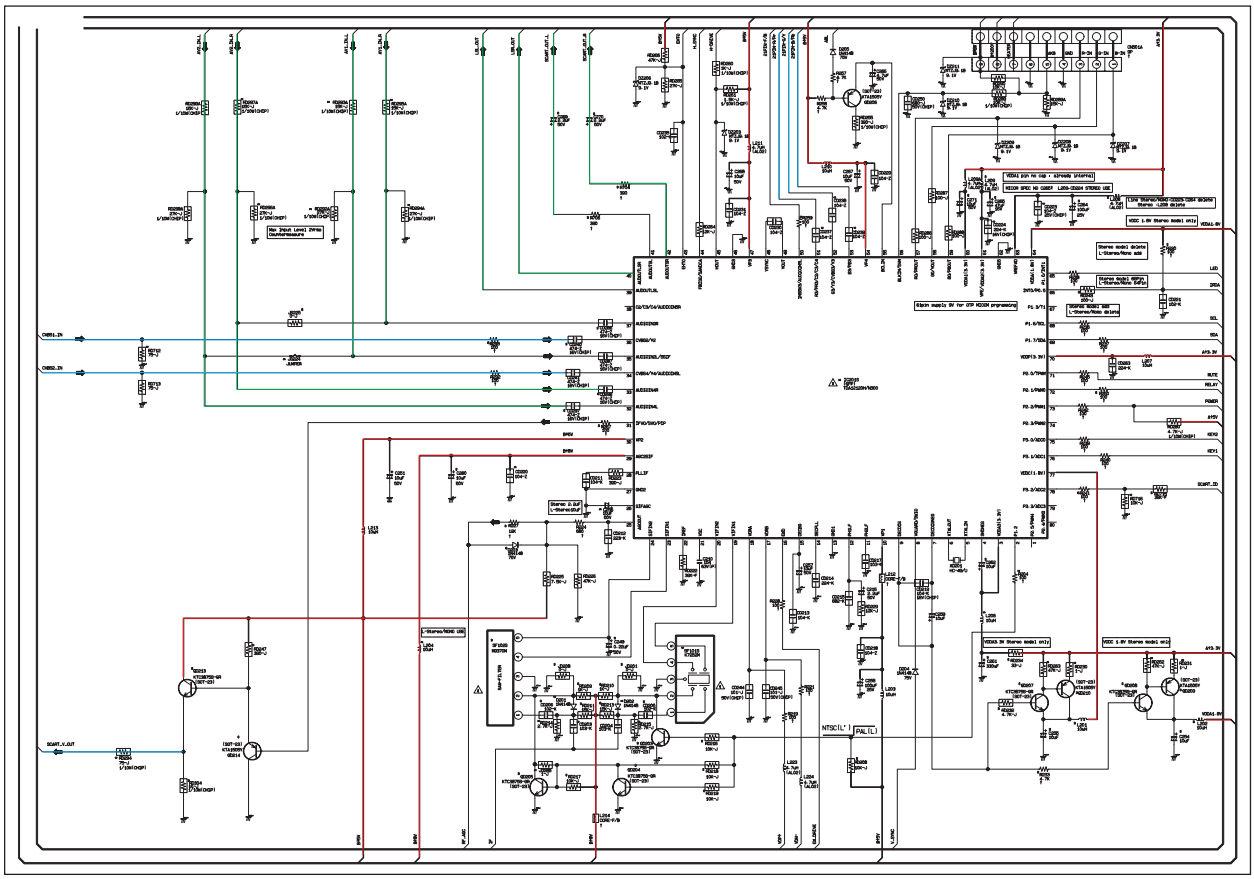


2. External Input Diagnosis
   Component inputs and one monitor output (Video, Audio) are supported.
   The signal is input to UOC TOP IC through the ports.
   If the signal input change “and output are” to “is” not detected, check the following.
   - Supplied Power: UOC TOP IC(5V, 3.3V, 8V)
   - Input Problem Check: Check the connecting jacks.

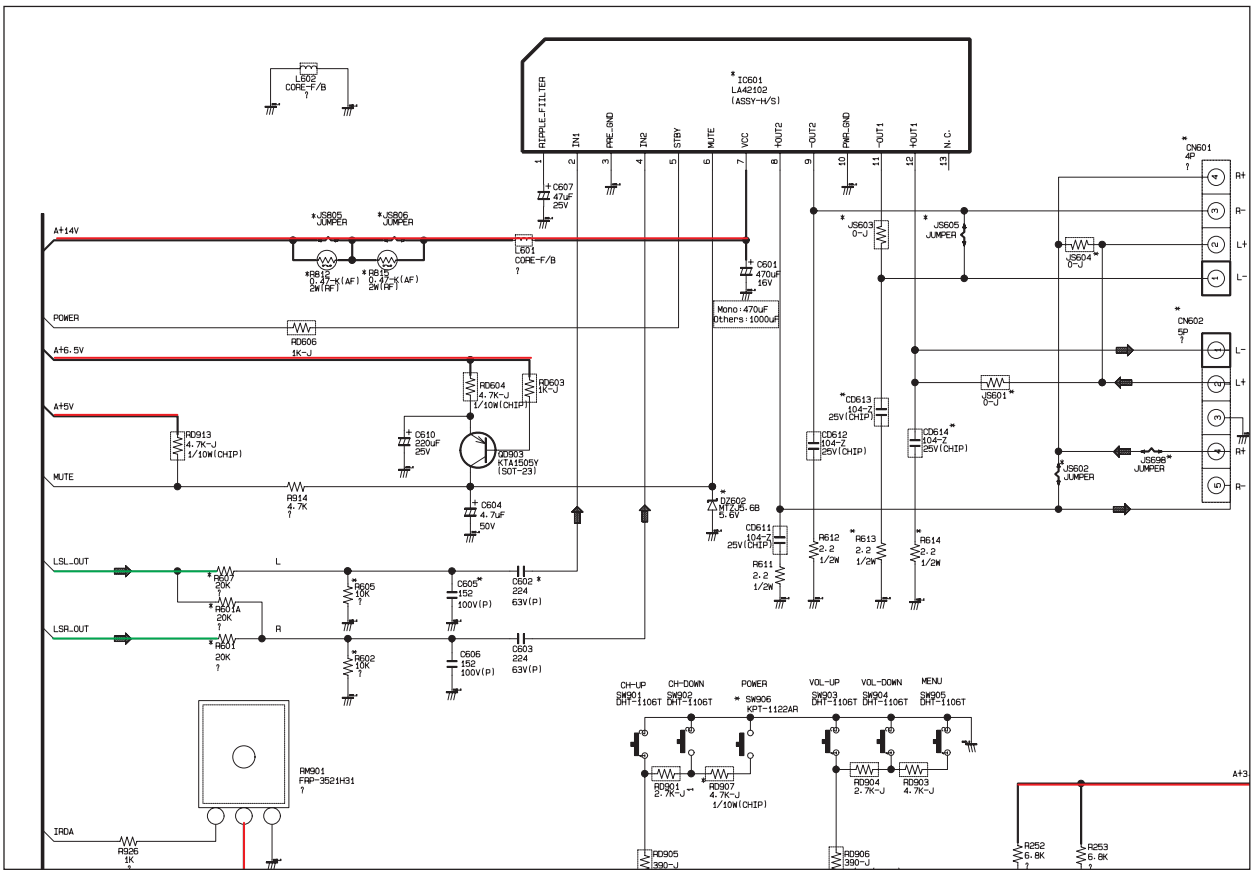




3. TDA12156H/N3 Diagnosis
   IF+MICOM+VIDEO



4. LA42032 Diagnosis
   - Supplied Power: 11V
   - Input Problem Check: L/R
   - Output Problem Check: L+, L-, R+, R



4-2 Adjustment

4-2-1 Service Instruction

1. General Adjustment :

   In general, a color TV can provide ideal visual quality by adjusting the basic settings such as the vertical size, horizontal size, focus, etc.

   Display a black and white picture on the screen to check if the picture is clearly displayed.

   If there are some 'spotted' points on the screen when displaying a black and white picture, degauss the screen using the degauss coil. If the spotted points remain, re-adjust the purity and the convergence.

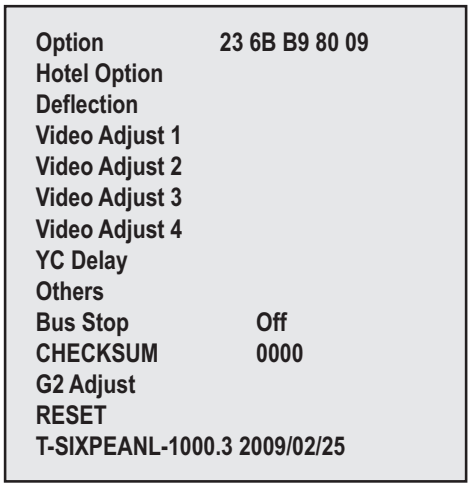
   This completes the basic performance examination.

4-2-2 How to Access Service Mode

1. To enter Service Mode, press the keys on the remote control according to the following sequence. (in Stand-by status)

   To Enter: **Info** → **Menu** → **Mute** → **POWER ON**

2. The initial screen of Service Mode.



3. Functions of the Keys within Service Mode.

MENU	Show all menus
▲ /▼	Move the cursor to select an item.
◀/▶	Adjust the selected configuration value

4. W/B Setting

No	Item	Data	Required Adjustment
1	White Balance	x: 265± 5 y: 265± 5 Y: 45± 3	White Balance (Standard Data)
		x: 265± 5 y: 265± 5 Y: 1.5± 0.3	
2	Screen Voltage	Toshiba Pattern	Same As KSCB Chassis
		G2 Adjust	

4-2-3 Factory Data

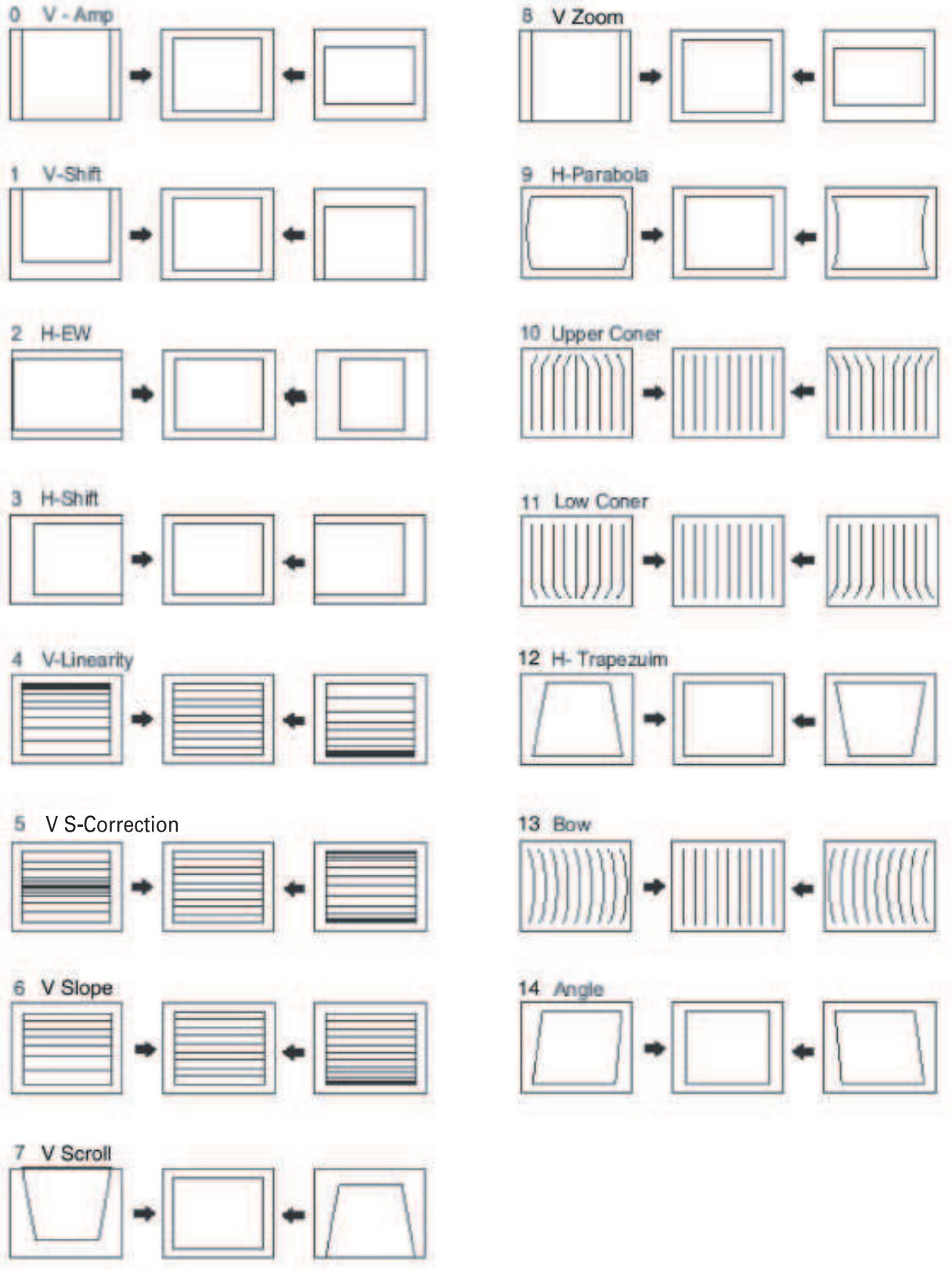
♦ The underlined are items applied during the service adjustment. None of the others should be adjusted.

1. Option

No	Item	Selection	Initial Data	
			Others	Indonesia model
1	Video mute	100msec~1000msec/Off	900msec	900msec
2	System	CS/CZ	CS	CS
3	AV Jack	1RCA/2RCA/2RCA+DVD/1SCART	2RCA+DVD	2RCA+DVD
4	Sound	Line Stereo /Mono	Line Stereo	Line Stereo
5	High Deviation	ON/Off	On	On
6	Volume Curve	Large/Small	Large	Large
7	Initial Lang	English/Indonesia/Malaysia/Thailand/Vietnam	By country	By country
8	Lang Group	East Asia/Singapore	East Asia	East Asia
9	V-Guard	On/Off	On	On
10	LNA	On/Off	Off	Off
11	Sound Detect	BG/DK/I	BG	BG
12	DNIe JR	On/Off	On	On
13	Indonesia Mode	On/Off	Off	On
14	Tact Key	On/Off	ON	ON

2. Hotel Option

No	Item	Selection	Initial Data	
			Others	Indonesia model
1	Hotel Mode	On/Off	Off	Off
2	Power On Channel	0 ~ 99	1	1
3	Power on volume	0 ~ 100	10	10
4	Max Volume	0 ~ 100	100	100
5	Pannel Button Lock	On/Off	Off	Off
6	Power On Source	Off/TV/AV1/AV2/DVD	Off	Off


0 V - Amp
1 V-Shift
2 H-EW
3 H-Shift
4 V-Linearity
5 V S-Correction
6 V Slope
7 V Scroll
8 V Zoom
9 H-Parabola
10 Upper Coner
11 Low Coner
12 H- Trapezuim
13 Bow
14 Angle

3. Deflection

No	Item	Data	Initial value	Remarks
1	V Amp	Adjust	25	
2	V Shift	Adjust	39	
3	H EW	Adjust	39	
4	H Shift	Adjust	30	
5	V Linearity	FIX	25	
6	V S-Correction	FIX	29	
7	V Slope	FIX	45	
8	V Scroll	FIX	22	
9	V Zoom	FIX	17	AV Horizontal Line/ V-AMP Margin
10	H Parabola	Adjust	35	
11	Upper Corner	Adjust	45	
12	Lower Corner	Adjust	40	
13	H Trapezium	Adjust	25	
14	Bow	Adjust	25	
15	Angle	Adjust	30	

4. Video Adjust 1

No	Item	Data	Initial value	Remarks
1	R Cutoff	Adjust	32	
2	G Cutoff	FIX	32	
3	B Cutoff	Adjust	32	
4	R Drive	Adjust	32	
5	G Drive	FIX	32	
6	B Drive	Adjust	32	
7	Sub Bright	Adjust	10	
8	Sub Contrast	Adjust	15	
9	Bluescreen Contrast	Adjust	15	
10	G2 Adjust Bright	FIX	45	9 TR
11	AKB Option	FIX	0	
12	Cathode Drive Level	FIX	10	W/B adjust Margin

5. Video Adjust 2

No	Item	Data	Initial value	Remarks
1	PAL/SECAM Sub Color	FIX	9	
2	NTSC Sub Color	FIX	6	
3	NTSC Sub Tint	FIX	24	
4	YUV Sub Tint RF	FIX	32	
5	YUV Sub Tint AV	FIX	35	
6	YUV Sub Tint RGB	FIX	32	
7	Soft Clipping Level	FIX	0	9 TR
8	Peak White Limit	FIX	6	9 TR
9	SECAM B-Y Offset	FIX	1	
10	Peaking CF0 & Delay Mode	FIX	0	
11	Sub Sharpness	FIX	23	
12	Video Dependent Coring RF	FIX	3	
13	Video Dependent Coring AV	FIX	3	

6. Video Adjust 3

No	Item	Data	Initial value	Remarks
1	RF AGC	Adjust	30	2.11±0.05V
2	IF AGC Speed	FIX	1	
3	IF Demodulator	FIX	38	
4	Fast Filter IF PLL	FIX	0	
5	RF FOA/FOB	FIX	0	VCR RF output
6	AV FOA/FOB	FIX	0	
7	RF PAL Ident Sensitivit	FIX	2	
8	RF NTSC Ident Sensitivit	FIX	2	
9	AV PA/NT Ident Sensitivit	FIX	2	

7. Video Adjust 4

No	Item	Data	Initial value	Remarks
1	Bypass of Chroma Base Band	FIX	0	0: active 1: bypassed
2	Fixed Beam Current	FIX	0	
3	Fixed Beam Current1	FIX	0	
4	Forced Colour On	FIX	0	0: off 1: on
5	Beam Current Limiting	FIX	0	
6	Chroma Trap Mode	FIX	0	
7	EHT Tracking Mode	FIX	1	0: only on vertical 1: on vertical and EW
8	Scart R cutoff	FIX	32	Scart W/B
9	Scart G cutoff	FIX	32	Scart W/B
10	Scart B cutoff	FIX	32	Scart W/B
11	RGB Blanking Mode	FIX	1	Secam Blanking
12	Wide Blanking Front	FIX	0	Secam Blanking
13	Wide Blanking Rear	FIX	6	Secam Blanking
14	Cut Off Contorl Range	FIX	0	

8. YC Delay

No	Item	Data	Initial value	Remarks
1	PAL Delay	FIX	12	
2	SECAM Delay	FIX	12	
3	NTSC Delay	FIX	12	
4	PAL AV Delay	FIX	12	
5	SECAM AV Delay	FIX	12	
6	NTSC AV Delay	FIX	12	

9. Others

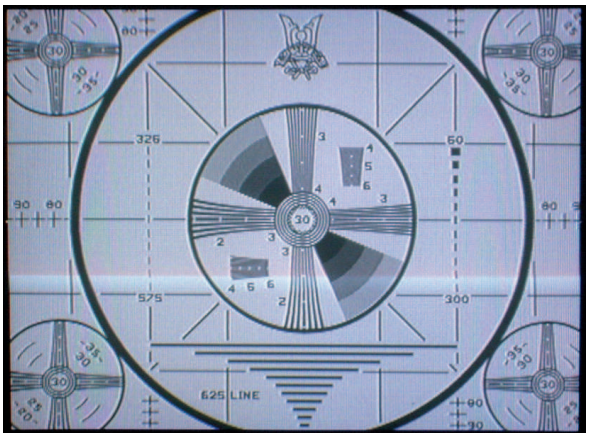
No	Item	Data	Initial value	Remarks
1	Service Blanking	FIX	0	0: off 1: on
2	Black Area	FIX	1	
3	Black Stretch	FIX	2	0: not active 1: active -15IRE 2: active -30IRE
4	Blue Stretch	FIX	0	
5	No Red Reduction	FIX	1	
6	OSD Brightness	FIX	15	
7	PWL Active	FIX	1	0: not active 1: active
8	Bypass Peaking Delay	FIX	0	0: normai operation 1:peaking delay bypassed
9	Ratio Pre & After Shoot	FIX	2	
10	Ratio posi & Nega Peaks	FIX	2	
11	Dynamic Skin	FIX	0	0: 123 degree 1: 117 degree
12	Gamma & White Stretch	FIX	1	0 ~ 3
13	DC Transfer Ratio	FIX	1	0: No black level shift 1: black level shift
14	NTSC Matrix	FIX	0	0: Japanese matrix 1: USA matrix
15	DCXO CAP	FIX	2	

4-2-4 Service Adjustment

1. Adjusting the Picture Size

Since the KSBA chassis includes a deflection adjustment of the Factory Data, adjustments must be performed according to the following procedures when replacing the Main Board.

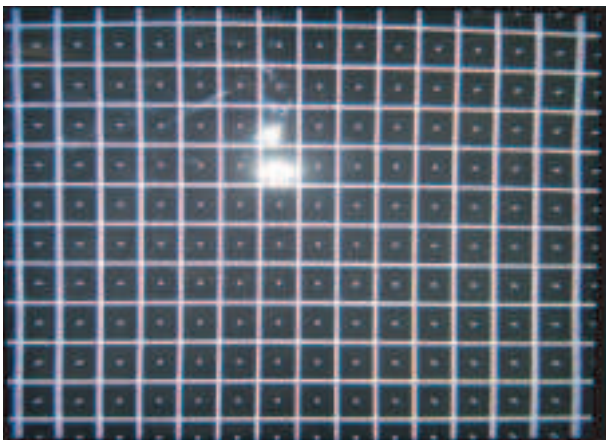
1 Display the Lion pattern.
2. Press "**Power Off → Info → Menu → Mute → Power On**" using the remote control and enter Factory Mode.



3. Enter Deflection Mode.
4. Adjust the V-AMP, V-SHIFT, H-EW and H-SHIFT items so that the width becomes 92 and the height becomes 92.

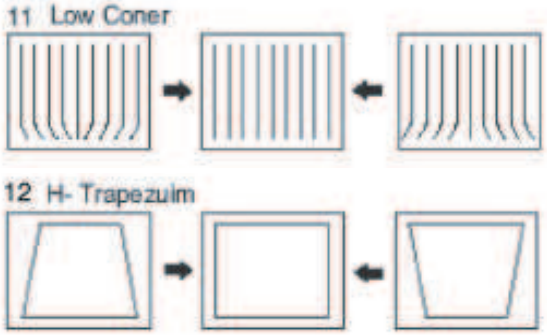
2. Adjusting the Picture Straight Lines

1. Display the Cross Hatch pattern.

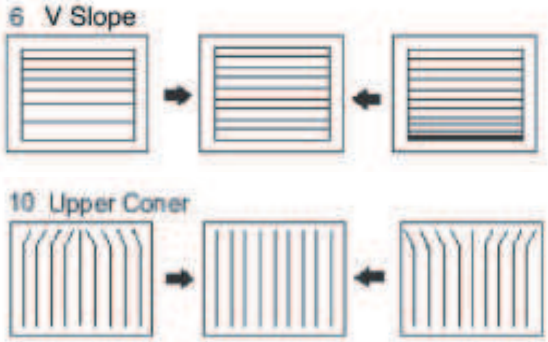


2 Adjust settings other than V-AMP, V-SHIFT, H-EW and H-SHIFT so that straight lines are displayed without curves.

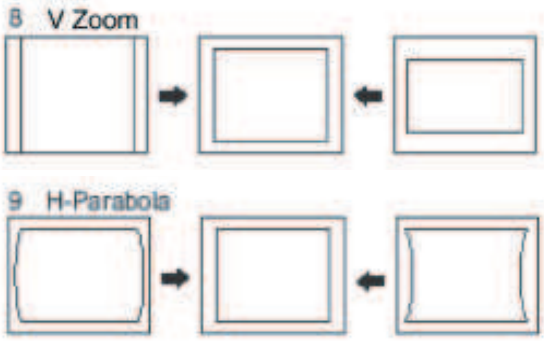
3. Adjust BOW and the Angle settings so that the center line becomes a straight line.



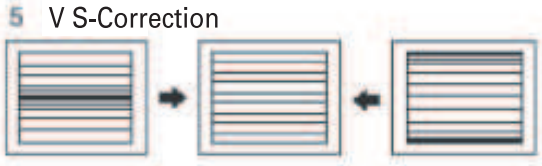
4. Adjust the H-Parabola and H-Trapezium settings so thatthe left and right lines become straight.



5. Adjust the Upper Corner and the Low Corner settings so thatthe end of the lines become straight.



6. Adjust the V-Linearity and V-SC settings so that the intervals of the horizontal lines become uniform.



7. When the adjustments are complete, display the Lion pattern and check that the picture size has not been changed. If there is no change, finish the adjustments.

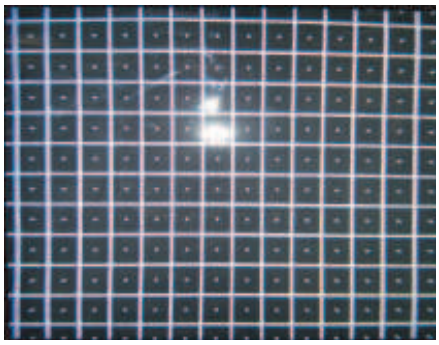
4-2-5 Replacements & Calibration

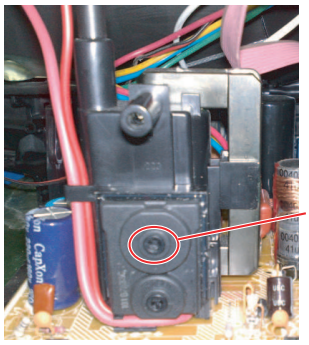
No	Item	Data	Remark
1	Main B/D	Adjust Screen, Adjust Focus, Adjust Factory Data, Adjust W/B	Toshiba Mode
2	Power B/D	-	Toshiba Mode
3	CRT Assy	-	-
4	FBT	Adjust Screen, Adjust Focus	Toshiba Mode
5	SUB	-	-

■ Adjusting the Focus

You must adjust the settings in the following order for the KSCB chassis when replacing the CRT PCB, FBT, or CRT.

1. Display the Cross Hatch pattern.
2. Set the Screen Adjustment to “OK”.
3. Turn the Focus VR so that the horizontal and vertical lines are clearly displayed.
4. Check the Focus for the entire screen and adjust the Focus VR if necessary.





■ Adjusting the Screen Voltage

1. Select: **Power OFF** → **Info** → **Menu** → **Mute** → **POWER ON**
2. Initialize all settings to the values appropriate to the corresponding model make sure the video adjust 1 is the factory date,just as the following picture.

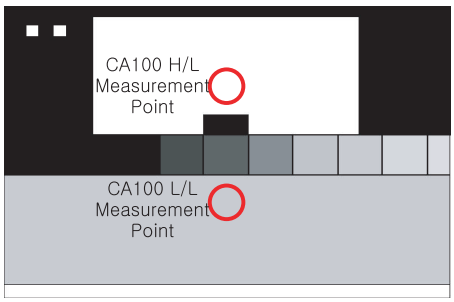
3. Select: Mute ,and get into the G2 adjust Toshiba pattern.

Screen VR

4. First check IBRM in “G2 Adjust” of Factory and adjust Screen VR until “Screen Adjust : OK” like the picture.

■ Adjusting the White Balance

1. Select: **Power OFF** → **Info** → **Menu** → **Mute** → **POWER ON**
2. Initialize all settings to the values appropriate to the corresponding model.
3. Display the Toshiba pattern and adjust the White Balance using CA100 with the coordinates of the corresponding model.



[CA100]

4. Enter Video Adjust1 of Service Mode. Adjust Low/Light.
   - Adjust Sub Bright to set Y.
   - Adjust B Cutoff to set y.
   - Adjust R Cutoff to set x.
5. Enter Video Adjust1 of Service Mode. Adjust High/Light.
   - Adjust Sub Contrast to set Y.
   - Adjust B Drive to set y.
   - Adjust R Drive to set x.
6. Check Low/Light and readjust it if its value has been changed.
7. If you have readjusted Low/Light, readjust High/Light until the two values are identical to the coordinates of the corresponding model.

※ White Balance Standard Data

No	Item	Data	Required Adjustment
1	White Balance	x: 265± 5 y: 265± 5 Y: 45± 3	White Balance (Standard Data)
		x: 265± 5 y: 265± 5 Y: 1.5± 0.3	

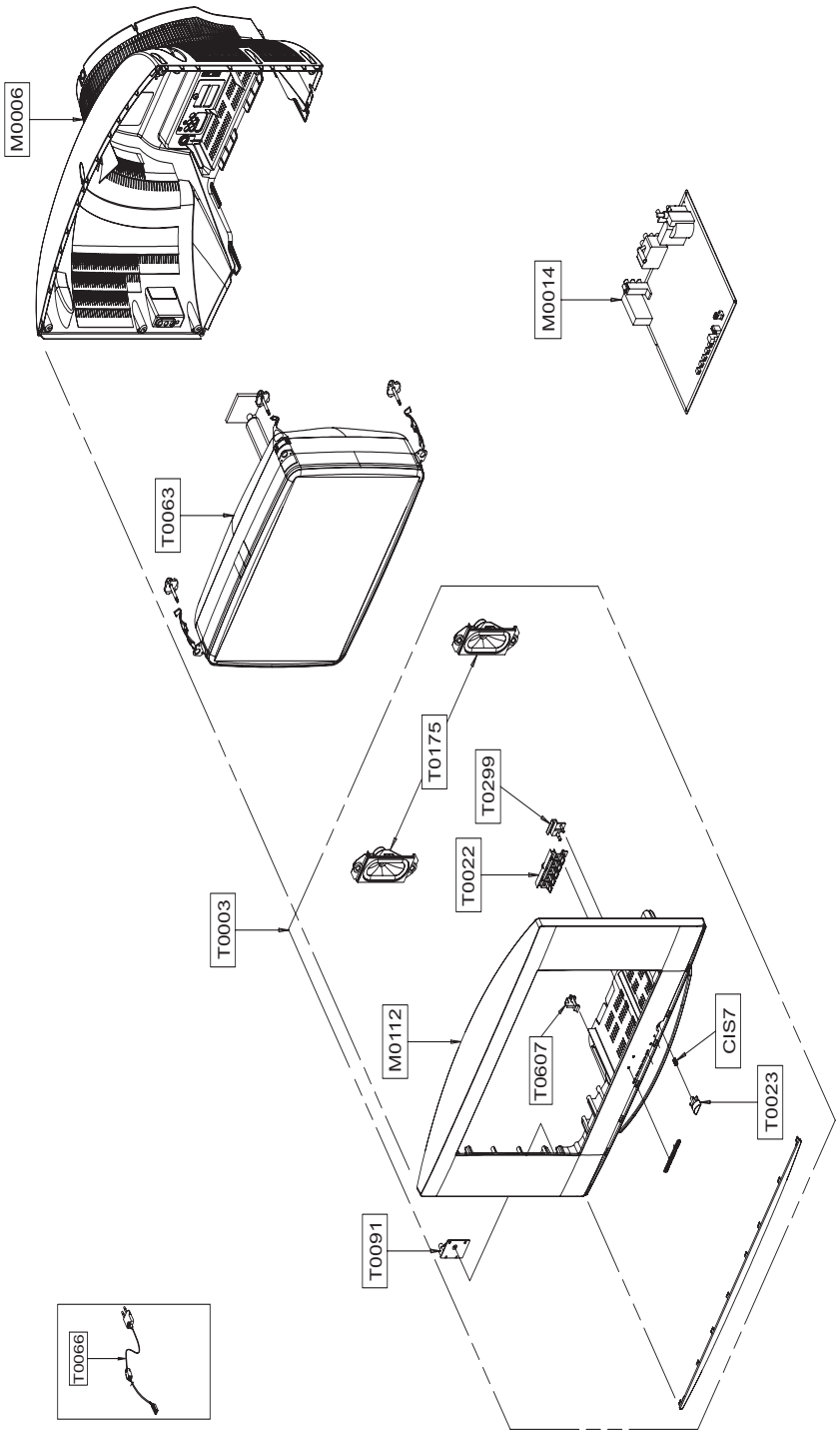
■ Check List for the Screen Voltage and White Balance Adjustment

1. The Screen Voltage and White Balance are connected to each other, and both of them have to be configured to the correct values.
2. Adjust the White Balance after the Screen Voltage was adjusted, and check if the Screen Voltage is normal after adjusting the White Balance.
3. If the White Balance is readjusted, check the Screen Voltage again.
4. When the adjustment is finished, check the following checklist.
   - If there is a spot on the screen when turning the TV set off/on, adjust the Screen Voltage again.
   - If there is a ghost line on the screen, adjust the Screen Voltage again.

MEMO

5. Exploded View & Part List

5-1 CS21A530FLKXSV Exploded View



Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
CIS7	AA61-60003J	SPRING ETC-CS	SUS304,OD6,N7,OD6	1	S.N.A	
M0006	AA63-01705B	COVER-REAR	21Z60 (SIEL),hips,hb,BK500,IN	1	S.A	
M0014	AA94-16719D	ASSY PCB MAIN	CS21A730ELKXSV,KSBH	1	S.A	⚠
M0112	AA63-01706K	COVER-FRONT	21AF0,HIPS,HB,BKN1576,KSCB,M	1	S.N.A	
T0003	AA96-05174T	ASSY COVER P-FRONT	21AF0,HIPS,HB,BKN1576	1	S.A	
T0022	AA64-04537A	KNOB CONTROL	21Z60 (SIEL),ABS,HB,BKN1576	1	S.N.A	
T0023	AA64-04538A	KNOB POWER	21Z60 (SIEL),ABS,HB,BKN1576	1	S.N.A	
T0063	AA03-00580A	CRT COLOR	A51QGZ 791X301,0mG,0.900,2.30,	1	S.A	⚠
T0066	AA96-20109B	ASSY POWER CORD	-,CP2/NO(4.0),H/C250,KKP	1	S.A	⚠
T0091	AA94-16001A	ASSY PCB MISC-A/V	CT-21Z45,KOREA,NARNIA	1	S.A	
T0175	AA96-04766A	ASSY SPEAKER P	8ohm,10W,R/B700mm,Y/B500m	1	S.A	
T0299	AA64-04528A	WINDOW-RMC LED	21Z60 (SIEL),PC,CLEAR	1	S.N.A	
T0607	AA61-40113A	STOPPER-PCB	501H,HIPS,HB,NTR	1	S.N.A	

5-2 CS21A530FLKXSV Electrical Part List

Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
		ASSY CHASSIS				
M0017	AA91-11563E	ASSY CHASSIS	CS21A730ELKXSV,KSBH	1	S.N.A	
	AA02-00012A	TAPE ETC-RIBBON	54CM,250MT	0.02	S.N.A	
T0065	AA94-16667A	ASSY PCB CRT	PBA	1	S.N.A	
C	2401-000430	C-AL	10uF,20%,250V,GP,TP,10x16mm,5m	1	S.A	
C	2401-001232	C-AL	4.7uF,20%,250V,GP,TP,10x12.5,5	1	S.A	
C501	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C503	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C504	2201-000556	C-CERAMIC,DISC	0.47NF,10%,500V,Y5P,TP,5.	1	S.A	
C506	2201-000723	C-CERAMIC,DISC	4.7NF,20%,3KV,Y5U,TP,16X5	1	S.A	
C508	2202-000796	C-CERAMIC,MLC-AXIAL	1nF,10%,50V,Y5P,-,2x	1	S.N.A	
D501	0401-000005	DIODE-SWITCHING	1N4148,75V,150mA,DO-35,T	1	S.N.A	
D515	0402-000254	DIODE-RECTIFIER	RGP10J,600V,1A,DO-41,TP	1	S.A	
GT501	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
GT504	BH71-40300A	PIN-HINGE	BRASS,D2.36!,HEAT/SINK,SN	1	S.N.A	
PCB	AA41-01330B	PCB CRT	CS21A550MLKXXV,FR-1,1,B,1.6,245*	1	S.N.A	
Q501	0501-002014	TR-SMALL SIGNAL	KSC2330-R,NPN,1W,TO-92L,	1	S.A	
Q502	0501-000266	TR-SMALL SIGNAL	BF423,PNP,830mW,TO-92,BK	1	S.A	
Q503	0501-002014	TR-SMALL SIGNAL	KSC2330-R,NPN,1W,TO-92L,	1	S.A	
Q504	0501-002014	TR-SMALL SIGNAL	KSC2330-R,NPN,1W,TO-92L,	1	S.A	
Q505	0501-000266	TR-SMALL SIGNAL	BF423,PNP,830mW,TO-92,BK	1	S.A	
Q506	0501-002014	TR-SMALL SIGNAL	KSC2330-R,NPN,1W,TO-92L,	1	S.A	
Q507	0501-002014	TR-SMALL SIGNAL	KSC2330-R,NPN,1W,TO-92L,	1	S.A	
Q508	0501-000266	TR-SMALL SIGNAL	BF423,PNP,830mW,TO-92,BK	1	S.A	
Q509	0501-002014	TR-SMALL SIGNAL	KSC2330-R,NPN,1W,TO-92L,	1	S.A	
R501	2001-000857	R-CARBON	560ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.N.A	
R502	2001-000857	R-CARBON	560ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.N.A	
R503	2001-000857	R-CARBON	560ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.N.A	
R504	2001-000429	R-CARBON	1Kohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.A	
R507	2001-000490	R-CARBON	200ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.N.A	
R509	2001-000490	R-CARBON	200ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.N.A	
R511	2001-000490	R-CARBON	200ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.N.A	
R516	2003-001093	R-METAL OXIDE(S)	12Kohm,5%,2W,AF,TP,3.9x	1	S.A	
R517	2001-000515	R-CARBON	220ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.A	
R518	2002-001017	R-COMPOSITION	1Kohm,10%,1/2W,AA,TP,3.7x9	1	S.A	
R519	2002-001017	R-COMPOSITION	1Kohm,10%,1/2W,AA,TP,3.7x9	1	S.A	
R520	2003-001093	R-METAL OXIDE(S)	12Kohm,5%,2W,AF,TP,3.9x	1	S.A	
R521	2001-000515	R-CARBON	220ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.A	
R522	2003-001093	R-METAL OXIDE(S)	12Kohm,5%,2W,AF,TP,3.9x	1	S.A	
R523	2001-000515	R-CARBON	220ohm,5%,1/8W,AA,TP,1.8x3.2mm	1	S.A	
R524	2008-000206	R-FUSIBLE(S)	1ohm,5%,1/2W,AF,TP,2.5x6.5m	1	S.A	
R525	2002-001017	R-COMPOSITION	1Kohm,10%,1/2W,AA,TP,3.7x9	1	S.A	
R526	2001-001062	R-CARBON(S)	10Mohm,5%,1/2W,AA,TP,2.4x6.4	1	S.A	
T0100	AA97-17718A	ASSY AUTO-CRT	PBA	1	S.N.A	
T0245	0202-001608	SOLDER-WIRE FLUX	LFC7-107,D0.8,99.3Sn/0.	0.003	S.N.A	
T0245	AA39-20112A	LEAD CONNECTOR-ASSY	,9P,400,YBNH025-09,6	1	S.A	
T0310	4715-001036	SURGE ABSORBER	500V,20%,TP	1	S.N.A	
⚠ V999S	3704-001197	SOCKET-CRT	8P+SEN,29PI,22.5PI,NI+SN	1	S.A	
M0014	AA94-16719D	ASSY PCB MAIN	CS21A730ELKXSV,KSBH	1	S.A	
C	2401-003391	C-AL	220uF,20%,450V,GP,BK,25x50,10	1	S.A	
CIS3	AA40-00176A	TUNER	EWT-5F6T2-EW,EWT-5F6T2-EW,PAL Hype	1	S.A	
CN330	3711-002644	HEADER-BOARD TO CABLE	BOX,5P,1R,2.5mm,ST	1	S.A	
CN330	3711-002647	HEADER-BOARD TO CABLE	BOX,8P,1R,2.5mm,ST	1	S.A	
CN330	3711-002648	HEADER-BOARD TO CABLE	BOX,9P,1R,2.5mm,ST	1	S.N.A	
CN330	3711-003043	HEADER-BOARD TO CABLE	BOX,4P,1R,2.5MM,ST	1	S.A	
⚠ CR401S	2303-000296	C-FILM,LEAD-PPF	18nF,5%,630V,BK,20x16x9.	1	S.A	
⚠ CR402S	2301-001041	C-FILM,LEAD-PPF	15nF,5%,1.6KV,TP,29x14x2	1	S.A	
⚠ CX801S	2301-001220	C-FILM,LEAD-PPF	100nF,10%,275V,BK,18x6x1	1	S.A	
⚠ CY802S	2201-000446	C-CERAMIC,DISC	3.3NF,20%,400V,Y5U,BK,15X	1	S.A	
D404	0402-001599	DIODE-RECTIFIER	DGP30L,1500,3A,DO-201AD(	1	S.A	
⚠ D801S	0402-001477	DIODE-BRIDGE	GSIB460,600V,4A,SIP-4,ST	1	S.A	
D807	0402-001604	DIODE-RECTIFIER	MUR420,200V,4A,DO-201AD,	1	S.A	
D809C	0402-001604	DIODE-RECTIFIER	MUR420,200V,4A,DO-201AD,	1	S.A	
D811	0402-001603	DIODE-RECTIFIER	MUR480E,800V,4A,DO-201AD	1	S.A	
FD802	3601-000281	FUSE-CARTRIDGE	250V,4A,TIME-LAG,GLASS,5.	1	S.N.A	
GT301	AA60-40012F	PIN-GT	4P,2.36PI,6/12/14mm,NYLON66,LOCKI	1	S.N.A	
GT801	AA60-40012G	PIN-GT	3P,2.36PI,10/5mm,NYLON66,LOCKING	1	S.N.A	
GT811	AA60-40012B	PIN-GT,ASSY	T1.6,10MM,NYLON66	1	S.N.A	
IC063	AA13-00126B	IC HYBRID	STR-W6753F,CS21Z45,7,-20~115,T	1	S.A	
IC112	1103-001213	IC-EEPROM	24C16,2Kx8,DIP,8P,9.2x6mm,2.5/	1	S.A	

Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
IC301	AA96-04922D	ASSY HEAT SINK P	AA62-00164A,6003-000334	1	S.N.A	
IC601	AA96-04756B	ASSY HEAT SINK P	AA62-30182L,6003-000335	1	S.N.A	
⚠ IC801S	AA96-05692A	ASSY HEAT SINK P	AA62-30171L,6003-000333	1	S.N.A	
JA333	3722-002556	JACK-PIN	3P,Ni+Sn,GRN/BLU/RED,ANGLE	1	S.A	
JA333	3722-002593	JACK-PIN	9P,Ni,YEL/WHT/RED,ANGLE	1	S.A	
⚠ LX801S	AA29-00021A	FILTER LINE NOISE	SQE2222,18mH,0.25ohm,1	1	S.A	
M0014	AA97-17822D	ASSY AUTO-MAIN	CS21A730ELKXSV,KSBH	1	S.N.A	
M0018	AA97-17852A	ASSY MICOM	T-CB1JPMANL-1001.2,KSBH,TDA12	1	S.N.A	
M0245	AA96-30007A	ASSY MISC	AA61-50055A,D,L-G7GA,GREEN	1	S.N.A	
P803T	1404-001265	THERMISTOR-PTC	4.5ohm/100ohm,+30/-20%,22	1	S.A	
⚠ PC801S	0604-001032	PHOTO-COUPLER	TR,170-260%,300mW,DIP-4,ST	1	S.A	
Q401	0502-001292	TR-POWER	TT2206-YD,NPN,65000mW,TO-3PML,S	1	S.A	
Q404	AA96-04922B	ASSY HEAT SINK P	AA62-00164A,6003-000334	1	S.N.A	
Q409	0505-001288	FET-SILICON	KHB9D5N20P,N,200V,9.5A,0.4oh	1	S.A	
Q804	0502-001007	TR-POWER	KSC2073-H2,NPN,25W,TO-220,ST,6	1	S.A	
RM901	AA32-00015A	Module Remocon	5	1	S.A	
⚠ SF101S	2904-001086	FILTER-SAW AV	38.9MHz,SIP5K,TP,18.5dB,B/	1	S.A	
T0010	AA27-00286C	COIL CHOKE	DR1420(C:8.0),DR14*20,1.25mH,	1	S.A	
T0010	AA27-00431A	COIL CHOKE	DR 1220,NEPTUNE,240uH,10%,0.2	1	S.A	
T0085	1201-002506	IC-AUDIO AMP	LA42102,SIP,13P,25.6x13.9mm	1	S.A	
T0087	1203-002018	IC-POSI.FIXED REG.	78R05,TO-220,4P,10MIL	1	S.A	
T0088	1204-002183	IC-VERTICAL PROCESSO	LA78045,TO220,7P,15	1	S.A	
T0098	AA62-30182L	HEAT SINK	CT-21Z43M,ALUMINIUM,2.0,26.2,4	1	S.N.A	
T0098	AA62-30171L	HEAT SINK	A6063S,T2.0,30	1	S.N.A	
T0119	AA09-00562A	IC MICOM	TDA12156H/N3,80Pin,3.3/5/8V,24.	1	S.N.A	
T0175	AA62-00164A	HEAT SINK-PS	IROBOT2,A1050,T1.0,41*50,WH	1	S.N.A	
T0175	AA62-00164A	HEAT SINK-PS	IROBOT2,A1050,T1.0,41*50,WH	1	S.N.A	
T0245	0202-001608	SOLDER-WIRE FLUX	LFC7-107,D0.8,99.3Sn/0.	0.025	S.N.A	
T0245	AA39-20010D	LEAD CONNECTOR-ASSY	,1P,400,YFH800-01,S,	1	S.A	
T0296	AA27-30003X	COIL LINEARITY	HL-1215,29uH,DR1215(C:4.5	1	S.A	
T0313	3404-001004	SWITCH-TACT	12V,50mA,160gf,8.4x22.7mm,SP	1	S.A	
T0510	AA97-17823D	ASSY SMD-MAIN	CS21A730ELKXSV,KSBH	1	S.N.A	
T0522	0205-001153	GREASE-SILICON	SC102,JAPAN,-	0.2	S.N.A	
T0522	0205-001153	GREASE-SILICON	SC102,JAPAN,-	0.2	S.N.A	
T0522	0205-001153	GREASE-SILICON	SC102,JAPAN,-	0.1	S.N.A	
T0522	0205-001153	GREASE-SILICON	SC102,JAPAN,-	0.1	S.N.A	
T0900	1404-001045	THERMISTOR-NTC	4.7ohm,4.565A,2900K,0mW/C	1	S.A	
T402	AA26-00311A	TRANS HORIZ.DRIVE	HDT-1215,SIX-O,4P,7.8m	1	S.A	
T444	AA26-00317A	TRANS FBT	BSC25-0218N,21UXM VE FBT,3.65	1	S.A	
⚠ T801S	AA26-00288A	TRANS SWITCHING	42B135 - DM,CS21Z45,FREV	1	S.A	
XD201	2801-003316	CRYSTAL-UNIT	24.576MHz,30ppm,28-AAM,20pF	1	S.A	
	AA97-17788G	ASSY OUTSOURCING	H/S,21, KSBH,10W+10W	1	S.N.A	
	6003-000335	SCREW-TAPTYPE	RH,+,2S,M3,L8,ZPC(WHT),SWR	1	S.N.A	
	6003-000334	SCREW-TAPTYPE	RH,+,-,2S,M3,L6,ZPC(WHT),S	1	S.N.A	
	6003-000334	SCREW-TAPTYPE	RH,+,-,2S,M3,L6,ZPC(WHT),S	1	S.N.A	
	6003-000333	SCREW-TAPTYPE	RH,+,-,2S,M3,L10,ZPC(WHT),	1	S.N.A	

ASSY BOX

M0003	AA92-12458J	ASSY BOX	CS21A530FGAXTW	1	S.N.A	
	AA02-00013A	TAPE ETC-RIBBON	101CM,250MT	0.2	S.N.A	
	AA69-04268H	BOX-SET	21Z60,CB,DY-01,AB,YELA1,ASIA,M/E	1	S.N.A	

ASSY P/MATERIAL

M0113	AA92-12460A	ASSY P/MATERIAL	CS21A530FLUXXL	1	S.N.A	
T0524	6902-000417	BAG PE	HDPE/NITRON/HDPE,T0.015/T0.5/T0.0	1	S.N.A	
T0214	AA60-40006A	PIN-STAPLE	AUTO,33X17.8X2.4,H18,33X17.8X	6	S.N.A	

ASSY LABEL

M0019	AA92-12759G	ASSY LABEL	CS21A550MLKXXV	1	S.N.A	
	AA02-00012A	TAPE ETC-RIBBON	54CM,250MT	0.02	S.N.A	

ASSY ACCESSORY

M0045	AA92-12815A	ASSY ACCESSORY	CS21B500HLKXSV,KSBH	1	S.N.A	
T0524	6902-000009	BAG PE	HDPE,T0.03,W240,L400,TRP,8,2,-,5.	1	S.N.A	
	AA02-00012A	TAPE ETC-RIBBON	54CM,250MT	0.02	S.N.A	
	AA68-03242M	MANUAL FLYER-MANUAL FLYER-06,S	comm,Sams	1	S.N.A	
	AA68-03777A	MANUAL USERS-CARD,09	comm,Samsung,Englis	1	S.N.A	

Loc. No.	Code No.	Description	Specification	Q'ty	SA/SNA	Remark
T0511	AA68-03999B	MANUAL USERS	COMM,SAMSUNG,ENG,E.ASIA,W/P	1	S.N.A	
T0511	AA68-04016B	MANUAL USERS	COMM,SAMSUNG,ARB,M.A/AFRICA	1	S.N.A	
T0511	AA68-04016D	MANUAL USERS	COMM,SAMSUNG,FRE,M.A/AFRICA	1	S.N.A	
T0074	BN59-00891A	REMOCON	CRT,TM930,SAMSUNG,20PIN,CIS,LATI	1	S.A	

ASSY COVER REAR

M0002	AA90-05897N	ASSY COVER REAR	21AE0,HIPS,HB,BK500,KSCA	1	S.N.A	
M0013	AA96-05325D	ASSY COVER P-REAR	CS21A530FL4XSH,ALGERIA	1	S.A	
M0006	AA63-01705B	COVER-REAR	21Z60 (SIEL),hips,hb,BK500,IN	1	S.A	
T0069	AA63-60131S	SPACER-FELT	21Z57,FELT,325,BLK,T0.5,7	4	S.N.A	
T0578	AA64-03660Z	INLAY AV	21Z30(NT),PS,T0.3,BLK,SHEET,K16	1	S.N.A	
T0066	AA64-04439P	INLAY-BACK	21Z50,PS,T3.0,SHEET,BLK(SI-20	1	S.N.A	

ASSY COVER FRONT

M0001	AA90-05969D	ASSY COVER FRONT	CS21A530FLMXXA	1	S.N.A	
T0081	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	7	S.A	
T0081	6002-000514	SCREW-TAPPING	RH,+,2,M4,L15,ZPC(BLK),SWR	2	S.A	
T0238	AA60-10050V	BOLT-HEX	M6,L30,ZPC(S/BLU),WC	4	S.N.A	
T0003	AA96-05174T	ASSY COVER P-FRONT	21AF0,HIPS,HB,BKN1576	1	S.A	
T0081	6002-000512	SCREW-TAPPING	RH,+,2,M4,L12,ZPC(BLK),SWR	1	S.N.A	
T0081	6002-000512	SCREW-TAPPING	RH,+,2,M4,L12,ZPC(BLK),SWR	1	S.N.A	
AV+CF	6003-001268	SCREW-TAPTYPE	TH,+,B,M4,L12,ZPC(WHT),SWR	1	S.N.A	
H/SPK+CF	AA60-10002A	SCREW-TAPTYPE	RH,+,M4,L12,ZPC(WHT),SWRCH	4	S.N.A	
T0607	AA61-40113A	STOPPER-PCB	501H,HIPS,HB,NTR	1	S.N.A	
CIS7	AA61-60003J	SPRING ETC-CS	SUS304,OD6,N7,OD6	1	S.N.A	
	AA63-01698A	COVER-DECO	21Z60 (SIEL),ABS,HB,SV012P	1	S.N.A	
M0112	AA63-01706K	COVER-FRONT	21AF0,HIPS,HB,BKN1576,KSCB,M	1	S.N.A	
T0069	AA63-60131S	SPACER-FELT	21Z57,FELT,325,BLK,T0.5,7	3	S.N.A	
T0299	AA64-04528A	WINDOW-RMC LED	21Z60 (SIEL),PC,CLEAR	1	S.N.A	
T0022	AA64-04537A	KNOB CONTROL	21Z60 (SIEL),ABS,HB,BKN1576	1	S.N.A	
T0023	AA64-04538A	KNOB POWER	21Z60 (SIEL),ABS,HB,BKN1576	1	S.N.A	
T0527	AA65-00011C	CLAMPER CORE-WIRE	ALL MODEL,NYLON 66,V2,	1	S.N.A	
T0527	AA65-30105D	CLAMPER CORE-WIRE	CS21T4MAVX/XTL,PP,CP-1	1	S.N.A	
T0091	AA94-16001A	ASSY PCB MISC-A/V	CT-21Z45,KOREA,NARNIA	1	S.A	
JA330	3722-001061	JACK-PHONE	1P,3.6PI,AG,BLK,N	1	S.A	
T0245	AA39-20068B	LEAD CONNECTOR-ASSY	,8P,400,YBNH025-08,6	1	S.A	
T0245	AA39-20069D	LEAD CONNECTOR-ASSY	,5P,300,YBNH025-05,6	1	S.A	
T0557	AA97-16790A	ASSY AUTO-A/V	CT-21Z45,KOREA,NARNIA	1	S.N.A	
RA01	2001-000028	R-CARBON(S)	100ohm,5%,1/2W,AA,TP,2.4x6.4	1	S.A	
RA02	2001-000028	R-CARBON(S)	100ohm,5%,1/2W,AA,TP,2.4x6.4	1	S.A	
CA05	2202-000183	C-CERAMIC,MLC-AXIAL	2.2nF,20%,16V,Y5R,TP	1	S.N.A	
CA06	2202-000183	C-CERAMIC,MLC-AXIAL	2.2nF,20%,16V,Y5R,TP	1	S.N.A	
C	2401-002009	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	1	S.A	
C	2401-002009	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	1	S.A	
LA01	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
LA02	2701-000114	INDUCTOR-AXIAL	10UH,10%,2534	1	S.A	
CA01	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.N.A	
CA02	2202-000231	C-CERAMIC,MLC-AXIAL	0.33NF,10%,50V,Y5P,T	1	S.N.A	
PCB	AA41-01178B	PCB SUB-SIDE A/V	CS21Z30,FR-1,1,B,1.6T,2	1	S.N.A	
JA333	3722-002595	JACK-PIN	3P,Ni,BLK,STRAIGHT	1	S.A	
T0245	0202-001608	SOLDER-WIRE FLUX	LFC7-107,D0.8,99.3Sn/0.	0.003	S.N.A	
T0175	AA96-04766A	ASSY SPEAKER P	8ohm,10W,R/B700mm,Y/B500m	1	S.A	

ASSY FIXING

T0892	AA91-10748B	ASSY FIXING	CP2/NO,250MM,S65A	1	S.N.A	
T0066	AA96-20109B	ASSY POWER CORD	-,CP2/NO(4.0),H/C250,KKP	1	S.A	
⚠ T0268	AA39-10006X	CBF-POWER CORD	KKP419C,3P,BLK,KLCE-2F,VD	1	S.A	
T0010	AA61-20284A	HOLDER	P-CORD,PP,BLK,VO,KE-002	1	S.N.A	
T0522	AA65-30008A	CLAMPER CORE-CORD	PE,HB,BLK	1	S.N.A	

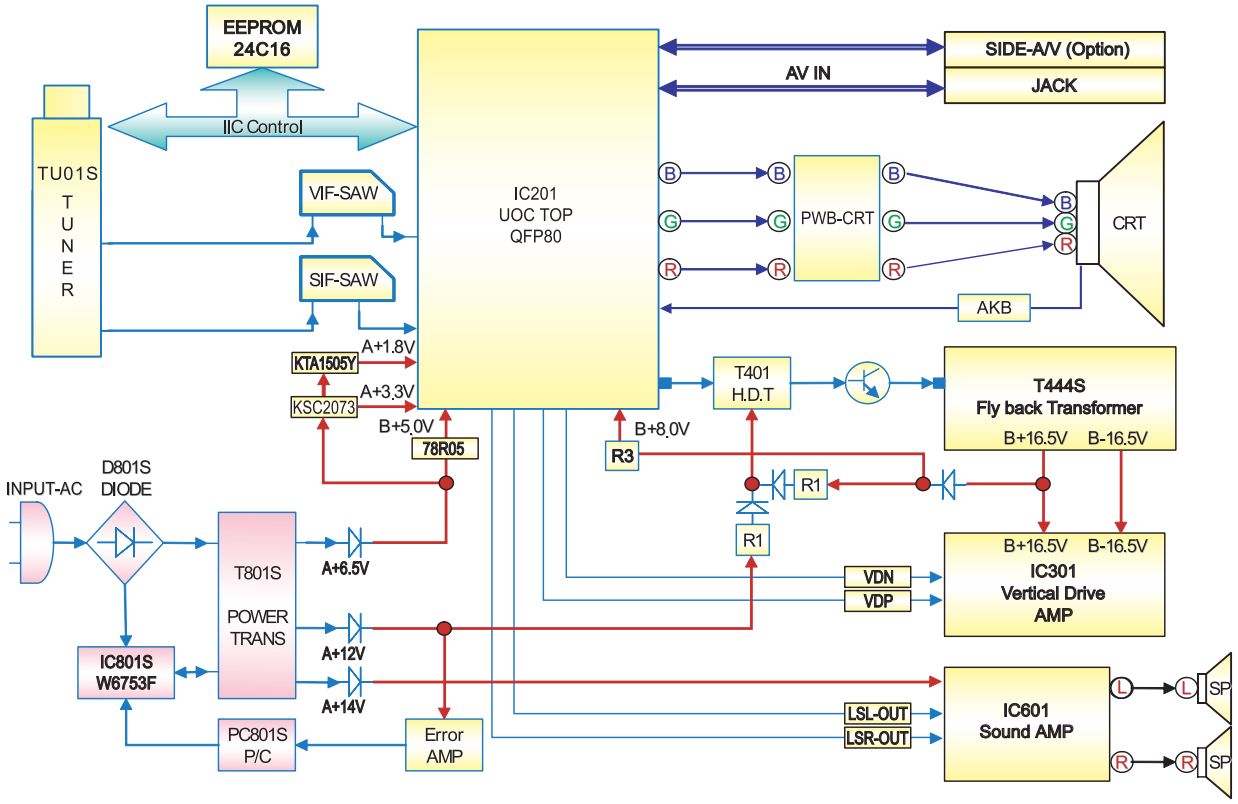
ASSY CPT

T0521	AA91-11501D	ASSY CPT	A51QGZ 791X301,0mG,21UXM CRT	1	S.N.A	
⚠ T0063	AA03-00580A	CRT COLOR	A51QGZ 791X301,0mG,0.900,2.30,	1	S.A	
T0089	AA27-00404A	COIL DEGAUSSING	ALUMINIUM,Narnia,7.5mH,6	1	S.A	
T0527	AA65-30107A	CLAMPER CORE-D,COIL	20~22 INCH,NYLON 66,	4	S.N.A	
T0603	AA96-03893G	ASSY TBC WIRE P	4*0.12TA*16,21,PAL&NTSC	1	S.N.A	

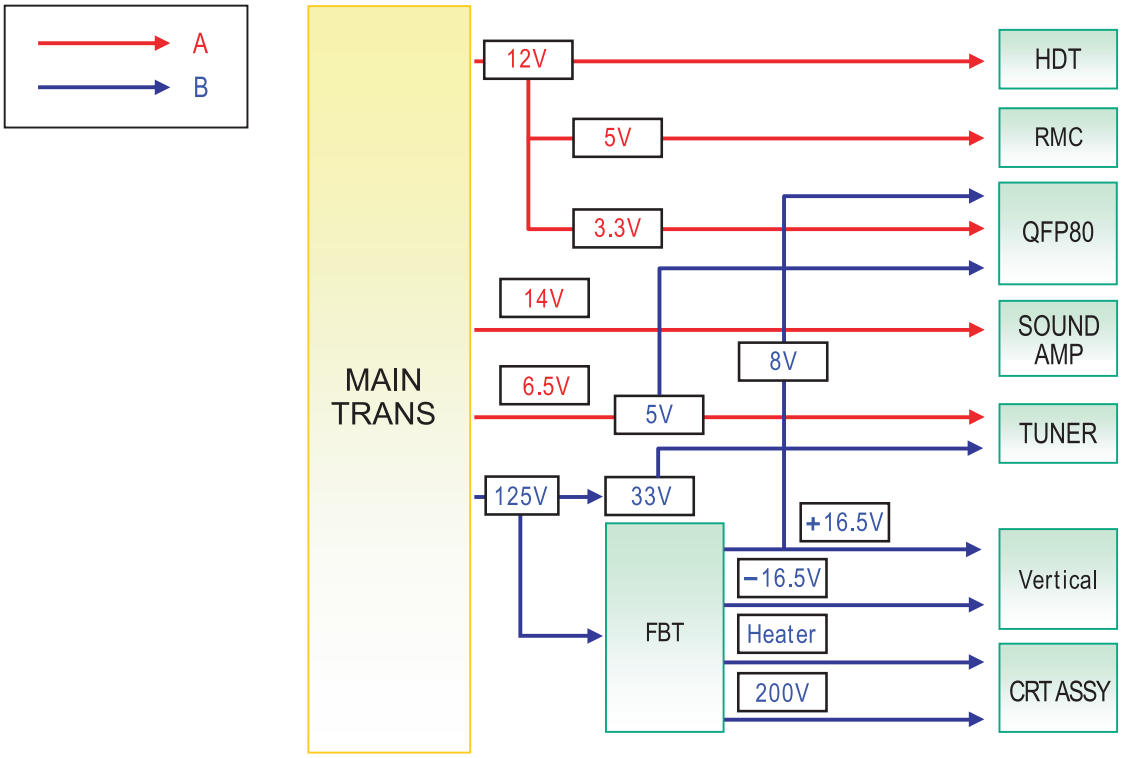
7. Schematic Diagram

7-1 Circuit Description

7-1-1 Overall Block Description

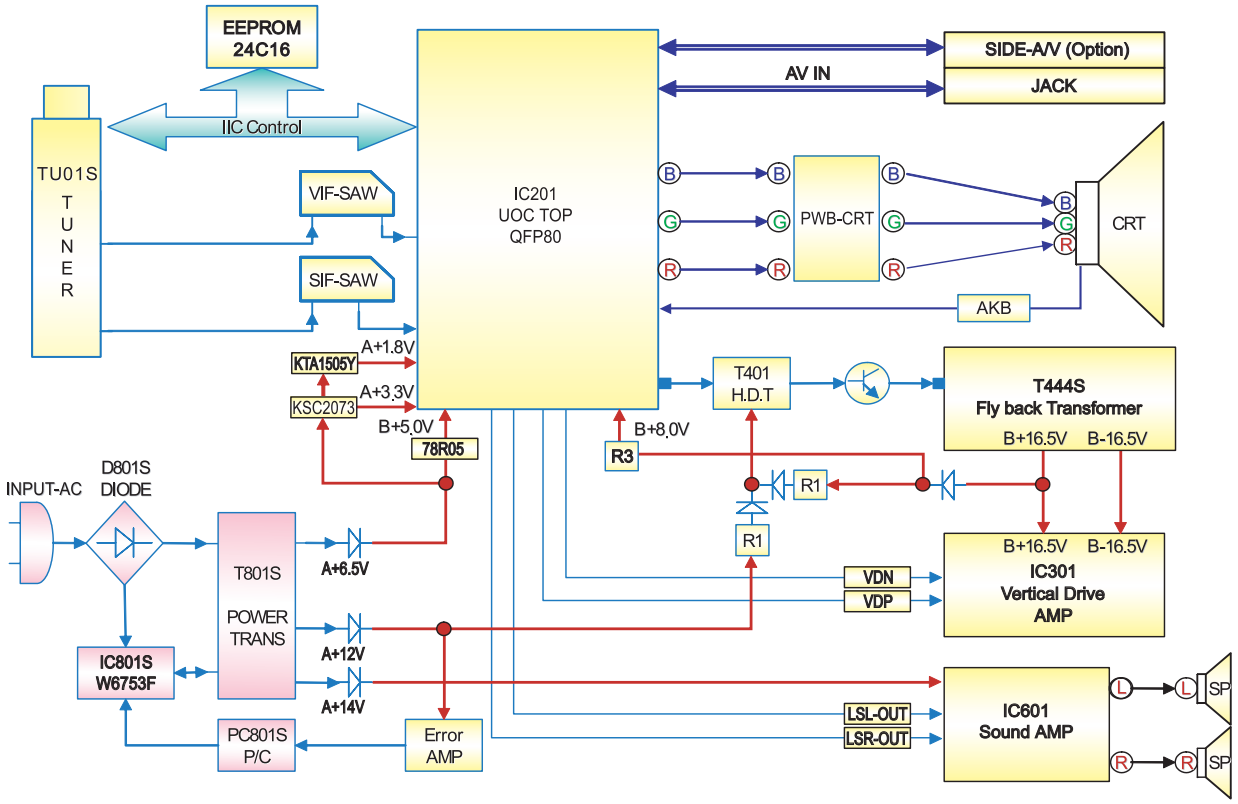


7-1-2 Power Signal



7-1-3 Partial Block Diagram

1. Main Block Description



MEMO

7-2 Schematic Diagram

7-2-1 Main Board

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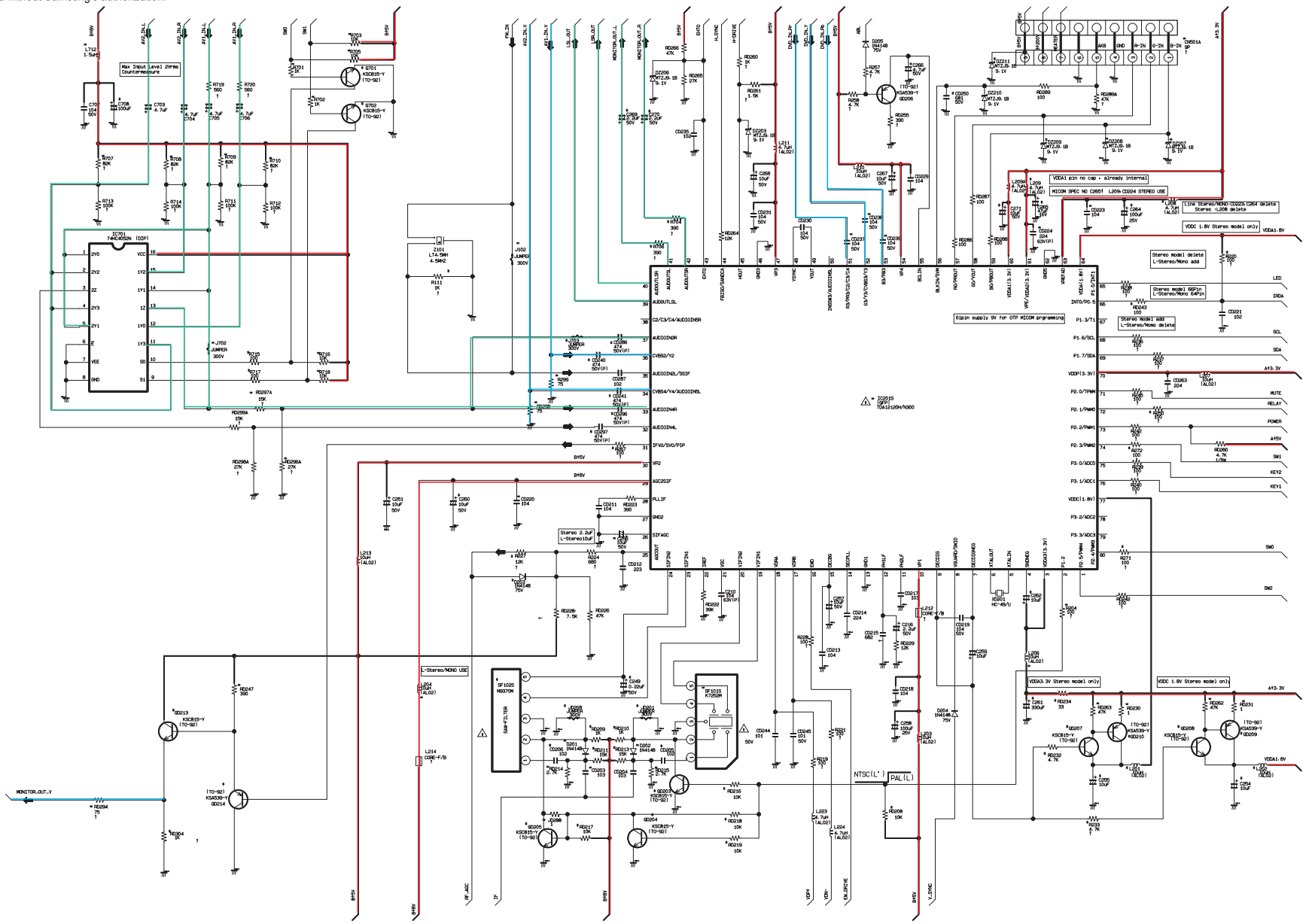
	Video
	Audio



7-2-2 Sound

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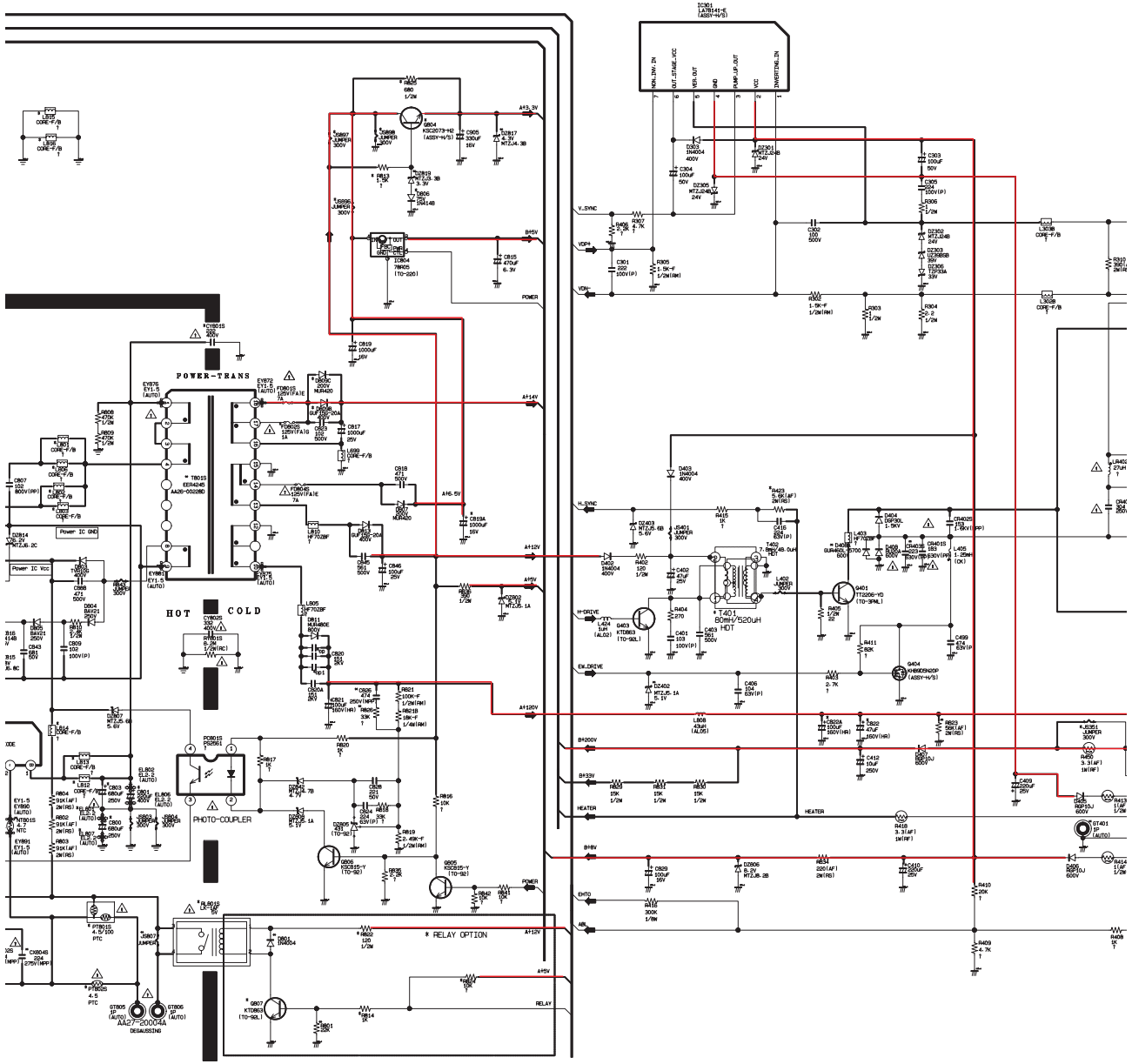

7-2-3 Power

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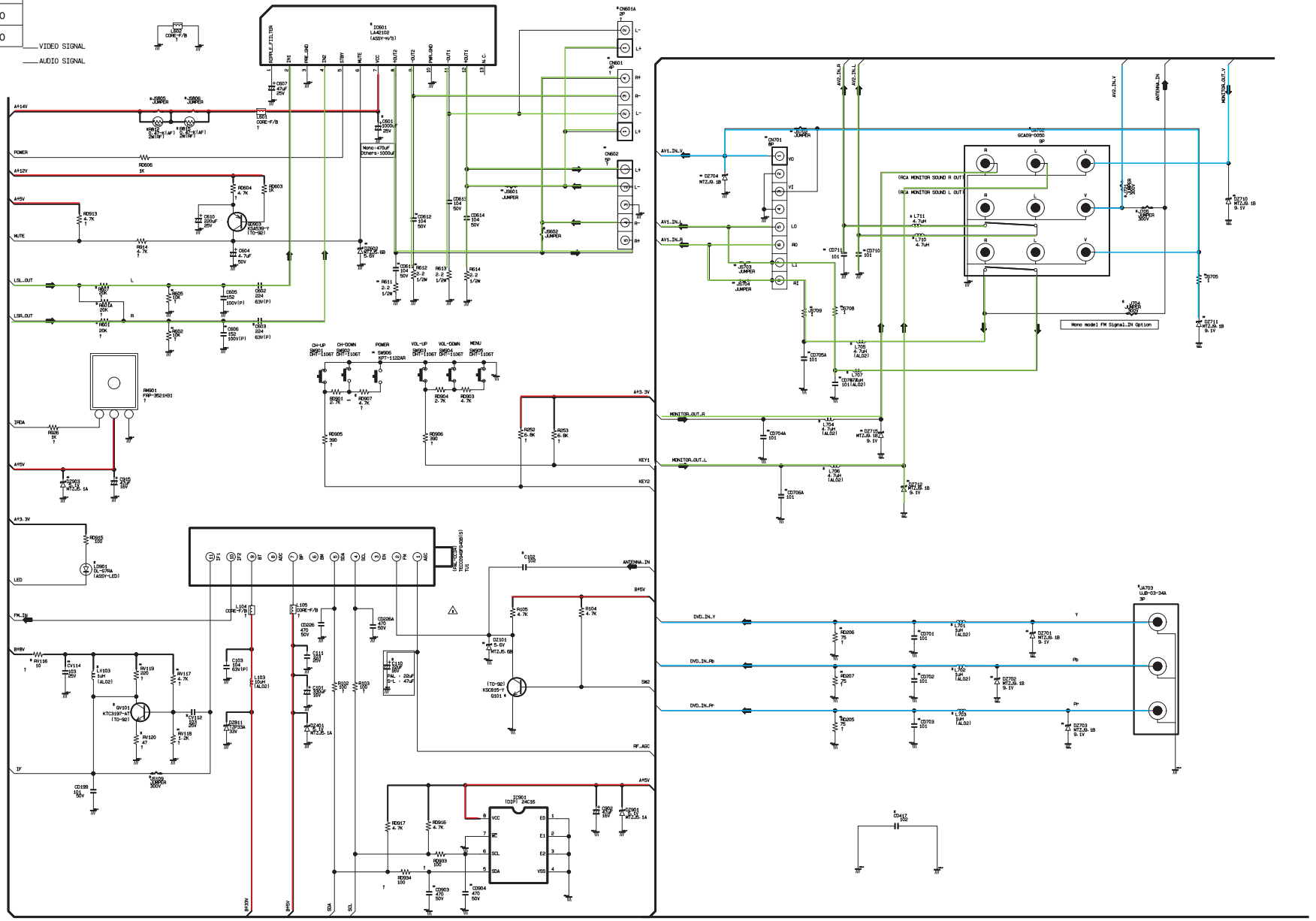
VIDEO SIGNAL

AUDIO SIGNAL



7-2-4 CRT

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